State of Hawaii
Department of Health

Child and Adolescent
Mental Health Division

Annual Evaluation Report
Fiscal Year 2005

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Contents

Child and Adolescent Mental Health Division
Annual Evaluation Report Fiscal Year 2005
Executive Summary

This report summarizes the results of the annual internal evaluation for fiscal year 2005 conducted by the Child and Adolescent Mental Health Division (CAMHD). The purpose of this report is to provide detailed analysis and critical review of the information gathered during the annual evaluation process. This executive summary focuses on several key issues that were identified for monitoring and follow-up in previous annual evaluations.

Population size and access to services. Recommendations from prior annual evaluation reports targeted the goal of expanding the overall number of youth served by CAMHD to reduce the prevalence of unmet needs in the community.

Fiscal year 2005 was the first year since 2001 that the total number of youth registered with CAMHD did not decline (+1% growth). In fact, the number of youth with services procured increased (+8%). Growth was driven by increased enrollment in the QUEST behavioral health plan (+19%). Youth receiving education-related mental health services continued to decline (-2%), but at a slower rate than in prior years.

Conduct Disorder and Its Precursors. The prevalence and challenges related to treatment have led disruptive behavior disorders to repeatedly emerge as a special need.

Disruptive behavior disorders surpassed attentional disorders as the most common problem among youth registered with CAMHD. Almost one out of every two youth (48%) had a primary or additional diagnosis in the disruptive behavior category. Multisystemic therapy is an evidence-based service to help youth with misconduct. The number of youth receiving multisystemic therapy had decreased during FY 2004, but utilization increased during FY 2005 to around the FY 2003 level. A request for proposals was released to establish new Multidimensional Treatment Foster Care services, another evidence-based service for youth with disruptive behaviors, with services scheduled to begin in FY 2006.

Community Residential Services. Halting the trend toward increasing utilization of community residential services was another common target of previous recommendations.

For the first time since 2001, the number of youth receiving community residential services did not increase over the previous year. In fact, as a relative proportion of all youth receiving services, the utilization of community residential services slightly decreased (-2%), as did the number of average hours of service per youth (-2%). However, unit cost increases were associated with greater total expenditures and cost per youth for community residential services. Thus, success was achieved in containing growth of community residential services, but it remains a relatively high use, high cost service.

Evidence-Based Practices. CAMHD invests considerable resources in developing therapeutic practices to more closely resemble the types of practices supported by scientific studies.

Over the past year, little change was observed in the pattern of therapeutic practices reported by service providers. Compared to evidence-based service protocols, actual care included both evidence-based and non-evidence-based practices. However, CAMHD providers reported using a greater variety of practices and using practices that had received less frequent support in research studies. This finding was consistent across diagnostic problem areas. Thus, considerable opportunity remains to evolve therapeutic practices to be more evidence-based.

Early Detection and Intervention. Identifying youth at a younger age or with less severe functioning was the objective of another host of recommendations from prior evaluations.

The average age of youth registered with CAMHD had declined in recent years, but this trend did not continue during fiscal year 2005. Further, the average child status scores for youth newly registered with CAMHD have remained generally stable over the past five years across measurement instruments. Thus, the available evidence indicates that little progress has been made in systematizing earlier detection and intervention. However,

CAMHD has reallocated some of its federal block grant funds to further support prevention and early intervention efforts, which were not directly assessed for this evaluation.

In addition to these focus areas from prior evaluations, this year's evaluation calls for highlighting attention on two additional areas.

Child Status at Discharge. The average child status scores for youth discharged from the CAMHD system indicate that youth are displaying more problematic functioning and greater service needs than youth discharged in prior years. The majority of CAMHD youth are showing improvement with treatment and the treatment gains are typically occurring more rapidly than several years ago, but youth may be discharged with somewhat greater impairment. This change is occurring in the context of a larger overall population and a reduction in service intensity. The size of the family guidance center workforce has remained generally stable, caseloads have increased near the high end of the targeted range, job vacancy rates have increased somewhat, and some vacant positions were eliminated. These factors may coincide to create an environment that encourages earlier discharge of youth who have improved with services, but who may not have improved quite as much as in recent past. Alternatively, the more rapid improvement may lead families and professionals to believe that termination of services at greater levels of impairment is appropriate because positive therapeutic momentum may continue with less intensive mental health services or informal supports. Further exploration of this phenomenon is advised.

Hospital Residential Services. Prior to fiscal year 2003, reducing utilization of hospital residential services and out-of-state services were key quality improvement goals. On a positive note, the number of youth receiving out-of-state services has continued to remain low. Unfortunately, the same is not true with respect to utilization of hospital residential services. The number of youth, total hours of service, average monthly census, and total cost of hospital residential services have increased. Although the number of youth receiving this service remains 12% below the FY 2002 level, it has increased by 39% since FY 2003. Therefore, reconsideration of more aggressive strategies for sustaining prior progress is recommended.

Introduction

The Hawaii Department of Health (DOH) is organized into three administrative units, Behavioral Health Services, Health Resources, and Environmental Health. The Child and Adolescent Mental Health Division (CAMHD) is a division of the Department of Health's Behavioral Health Services Administration, which also includes the Adult Mental Health Division and the Alcohol and Drug Abuse Division. The mission of CAMHD is to provide timely and effective mental health services to children and youth with emotional and behavioral challenges, and their families. These services are provided within a system of care that integrates Hawaii's Child and Adolescent Service System Program principles, evidence-based services, and continuous monitoring and quality improvement.

The CAMHD system has made many gains during the major systems reforms of the past 10 years. This was recognized in May 2005 when the federal court ended its oversight of the Felix Consent Decree. Therefore, the snapshot of the CAMHD system provided by evaluation during fiscal year 2005 (July 1, 2004 through June 30, 2005) provides a landmark from which to look both backward and forward. The Department of Education and the Department of Health will continue to publish the quarterly Integrated Performance Monitoring Report (IPMR) that describes and monitors the ongoing infrastructure and functioning of the system. The departments also continue to perform integrated monitoring through complex-based internal reviews and the interagency quality assurance committees at the state and local levels. The IPMR is designed to provide public access to the ongoing status of the system.

The purpose of the present report is to provide detailed analyses and critical review of the information gathered during the annual evaluation process. CAMHD gathers a wide variety of information about the performance of its operations. This information may be summarized into five major categories. First, population information is collected to understand the characteristics of the children, youth, and families that are served. Second, service information is compiled regarding the type and amount of direct care services used by children, youth, and families. Third, financial information is gathered about the cost of services. Fourth, system information is collected about the quality and operations of the statewide infrastructure needed to support children, youth, and families. Finally, outcome information is examined to determine the extent to which services provided lead to improvements in the functioning and satisfaction of children, youth, and families.

To provide consistency with prior annual evaluations (Daleiden, 2003; Daleiden, Lee, and Tolman, 2004), the present report begins by presenting the core fiscal year 2005 (July 1, 2004 through June 30, 2005) information in the same format and along with information from the prior evaluations. The goal of this report was to describe and analyze changes to CAMHD over the past five fiscal years from July 1, 2000 to June 30, 2005, with particular emphasis on changes during the past year. Data prior to fiscal year 2004 were adjusted to remove youth whose care was transferred to the Department of Education (DOE) and the Department of Health Developmental Disabilities Division during the transition to school-based behavioral health services (for details see Daleiden, 2003). Because major systemic restructuring has not occurred since fiscal year 2004, results from 2004 and later describe the entire population of youth registered with CAMHD.

The analytic framework described by Aday, Begley, Lairson, and Slater (1998) and discussed in the context of system of care research by Rosenblatt and Woodbridge (2003), was used to organize this report. This framework identifies the three key components of heath services research as equity, efficiency, and effectiveness. In the present application, equity analysis involved examination of congruence and disparity across groups (i.e., age, gender, ethnic, geographic region, and diagnosis) in services and expenditures. Efficiency analysis involved comparing input to output ratios for services (e.g., cost per youth, cost per service hour, service hours per youth). Effectiveness included analysis of the benefits of services in terms of child functioning and service needs.

This year's evaluation also provides more in-depth analysis of youth outcomes by the type of service received and investigates whether regular treatment practices have become more consistent with evidence-based services. These focus areas were selected to increase understanding of specific types of service as moderators of youth outcomes.

Findings

Population Characteristics

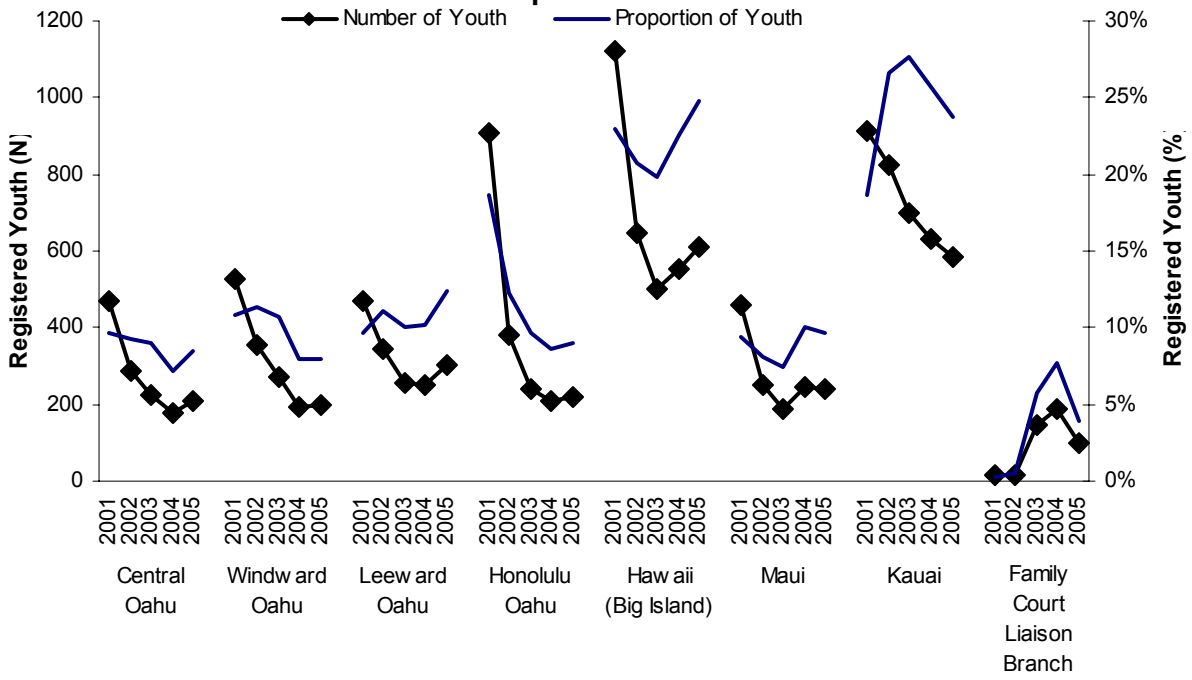
The final population of youth selected for this evaluation represented all youth registered to CAMHD for one or more days during fiscal year 2005 (i.e., the period from July 1, 2004 to June 30, 2005). This population was compared to the populations of youth registered during fiscal years 2001 to 2004, which adjusted for youth receiving low-end services only and youth with Pervasive Developmental Disorders as previously described.

CAMHD provided case management services for 2,462 youths during FY 2005. The youth population remained mostly stable with a minor increase (+15 youth; +0.6%) between FY 2004 and FY 2005 and indicates that the prior trend of major annual decreases has ended. The rate of admissions into the system declined (by -10% to N = 997 for new admissions, -21% to N = 452 for repeated admissions), which reversed a multi-year trend of increased admissions. The new admission rate remains slightly above the FY 2003 level (40.5% vs. 38.5%), whereas the readmission rate is slightly below the FY 2003 level (18.4% vs. 20.8%). The rate of discharges continued its multi-year decline (-17%) such that 815 youth were discharged during FY 2005 compared to 981 in FY 2004. Thus, there was somewhat less turnover in the CAMHD population on an annual basis.

Regional Variation

Examination of registered population size by geographic region (see Figure 1) indicates that stabilization or growth has occurred at all of the major branches except Kauai Family Guidance Center (KFGC) and the Family Court Liaison Branch (FCLB). Hawaii Family Guidance Center (HFGC) continued to increase in the total number of registered youth (HFGC: 551 – 609 youth) and is now the largest branch in the state. The Central Oahu Family Guidance Center (COFGC) and Leeward Oahu Family Guidance Center (LOFGC) have made substantial gains and reversed the declines of recent years (COFGC: 177 - 209 youth; LOFGC: 249 - 305 youth). The Honolulu Family Guidance Center (HOFGC) stabilized with a slight gain (211 - 221 youth), as has the Windward Family Guidance Center (WOFGC: 195 - 196). The Maui Family Guidance Center (MFGC) with a slight loss (MFGC: 246 – 239 youth).

Figure 1. Absolute and Relative Size of CAMHD Family Guidance Center Populations



KFGC and FCLB differ markedly from the other branches. Kauai Family Guidance Center registers all youth from the integrated school-based Department of Education-Department of Health Mokihana project. Therefore, both less intensive and intensive mental health service populations are included. The total Kauai registered youth population has consistently declined over the past five years. FCLB provides services primarily for incarcerated and detained youth regardless of their home geographic region. FCLB only registers youth that are not registered to a Family Guidance Center. Therefore, the large decrease in their population (FCLB: 188 - 97) may be due to increased registration of justice-involved youth at other centers or due to decreased services to youth at the Detention Home or Hawaii Youth Correctional Facility. Statewide, the proportion of registered youth recorded with juvenile justice involvement has declined somewhat over the past year (-6% decrease in the number of youth with a court hearing; -17% decrease in the number of youth detained or incarcerated), so the former explanation is unlikely.

When geographic distribution was examined as a proportion of the general population of youth between the ages of 3 and 21 years identified by the US census (see Table 1), results were similar to prior years. The county of Kauai had the highest penetration rate followed by Hawaii, then Maui, and then Honolulu (i.e., Central, Leeward, Windward, and Honolulu Family Guidance Centers). In comparison, the National Association of State Mental Health Program Director (NASMHPD) Research Institute estimated that rates of serious emotional disturbance (SED) were between 9 and 11% of the general population of 9 – 17 year-olds residing in Hawaii during 2004.

Table 1: Percent of youth aged 3 – 21 years by county registered with CAMHD.

	Proportion of U.S. Census 2000				
County	2001	2002	2003	2004	2005
Kauai	5.74	5.21	4.39	3.97	3.69
Hawaii (BI)	2.73	1.57	1.22	1.35	1.49
Maui	1.38	0.76	0.56	0.74	0.72
Honolulu	1.06	0.61	0.44	0.37	0.41
State	1.55	0.99	0.80	0.78	0.78

Source: U.S. Census Bureau Summary File 1 Hawaii (July 25, 2001) compiled by the Hawaii State Department of Business, Economic Development and Tourism, Hawaii State Data Center.

Race, National Origin, and Ethnicity

During fiscal year 2005, CAMHD revised its procedures for gathering information related to client race, national origin, and ethnicity. Specifically, the CAMHD system was revised to align federal reporting guidelines that require (a) separate assessment of national origin (Hispanic or Latino vs. Not Hispanic or Latino) from race and (b) collection of race information in a fashion that allows for endorsement of multiple response categories (i.e., check all that apply). The federal guidelines also allow for the assessment of ethnic subcategories beyond the primary racial categories and CAMHD elected to include additional subcategories. The revised data collection procedure allows for a more direct comparison between U.S. census data and CAMHD population data. Unfortunately, this revision precludes accurate comparison to data from prior years.

CAMHD conducted regional and statewide training on the new procedures during the second quarter of fiscal year 2005 and implemented the new procedures in December 2004. Therefore, data were collected using the old procedures for one half of the fiscal year and the new procedures for the other half. By the end of fiscal year 2005, data were available for 52.6% of all youth registered for one or more days during fiscal year 2005, and national origin data were available for

Table 2. Percent of CAMHD population by race.

Race	2005 %
American Indian and Alaska Native	0.1
Asian	8.0
Black or African American	1.3
Native Hawaiian or Pacific Islander	11.3
White	18.6
Other	0.9
Multiracial	59.8
Based on Observation	14.4
Not Available	47.4

Table 3. Percent of CAMHD population by National Origin.

Race	2005 %
Hispanic or Latino	27.4
Not Hispanic or Latino	72.6
Not Available	66.0

34% of all registered youth (see Tables 2 – 4). A large portion of the missing data is due to the fact Kauai has not implemented the new data collection procedures with the Mokihana project and account for a large proportion of the missing data, although the degree of successful implementation of the new procedures has varied across other FGCs. The lower completion rates for the national origin question suggest that some personnel conducting this assessment may not be completely familiar with the new question or that respondents may struggle with reporting national origin as a separate question. Monitoring and training in the new system is ongoing to promote continued improvement in completion rates for fiscal year 2006.

Use of the new system is not directly comparable to the prior system and not surprisingly, suggest a slightly different composition to the CAMHD population. Most notably, with the addition of multiple response options (see Table 2), more respondents were classified as multiracial (59.8%) or multiethnic (71.9%) than had previously endorsed the single multiethnic response (30.4%). This coincided with reductions in the single race categories, of Asian (8.0% in 2005 vs. 13.6% in 2004), Native Hawaiian or Other Pacific Islander (11.3% vs. 28.8%), White (18.6% vs. 22.3%), Black or African American (2.5% vs. 1.5%) and American Indian and Alaska Native (0.1% vs. 0.2%). In the new system, the category ranking changed slightly in that White was the most prevalent single race category followed by Native Hawaiian or Other Pacific Islander. With respect to national origin (see Table 3), the proportion of respondents classified as Hispanic or Latino (27.4%) was approximately 12 times higher than using the old system (2.2%). Table 4 depicts the detailed ethnic categories when the race and national origin data are combined into a single categorization system.

The race and national origin responses of CAMHD youth under 18 years of age were compared to the comparable U.S. Census 2000 data in two ways. The first analysis compared the proportion of respondents endorsing more than one race and the proportion endorsing the single race categories to the census (see Figure 2) and the second analysis compared the proportion of respondents that endorsed each category regardless of whether it was a single or multiple response (see Figure 3). These two analyses support slightly different interpretations.

Table 4. Percent of CAMHD population by ethnic group.

	2005 %
American Indian and Alaska Native	
Alaska Native	0.0
American Indian	7.1
Asian	
Asian Indian	0.0
Chinese	22.2
Filipino	25.2
Japanese	17.0
Korean	2.8
Vietnamese	0.1
Other Asian	1.0
Black or African American	
Black or African American	4.4
Hispanic or Latino	
Cuban	0.4
Mexican	4.1
Puerto Rican	15.0
Other Hispanic	10.0
Native Hawaiian or Pacific Islander	
Guamanian or Chamorro	0.6
Micronesian	1.8
Native Hawaiian	49.9
Samoan	7.3
Other Pacific Islander	3.7
White	
Portuguese	21.5
White or Caucasian	52.7
Other	
Other	5.6
Multiethnic	71.9
Not Available	66.4

Figure 1 illustrates that multiracial and Hispanic or Latino youth are relatively more common and single race Asian youth are relatively less common in the CAMHD population than the general population of youth in Hawaii. When the multiracial youth are classified into the separate response categories (i.e., duplicated across categories), White and Native Hawaiian or Other Pacific Islander and American Indian or Alaska Native (to a less smaller degree) youth are relatively more common and Asian youth are relatively less common in the CAMHD population than the general population of youth in Hawaii.

In the duplicated response analysis, the relative ordering of the White, Native Hawaiian or Other Pacific Islander, and Asian categories remained stable, whereas the American Indian or Alaska Native and Other Race responses were more prevalent than the Black or African American responses.

Figure 2. CAMHD Racial Groups Compared to U. S. Census 2000 for Hawaii Children Under 18 Years of Age

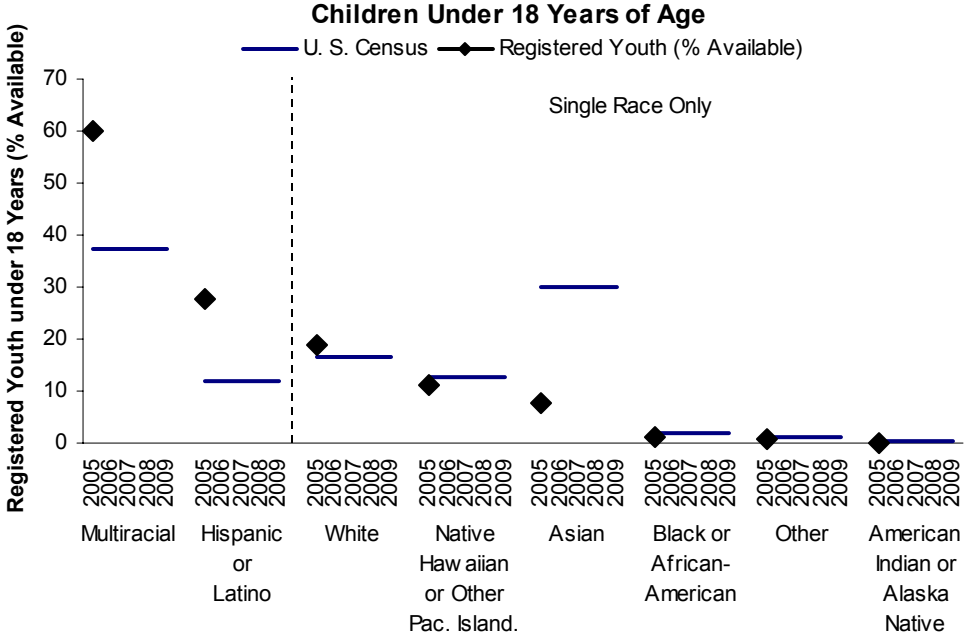
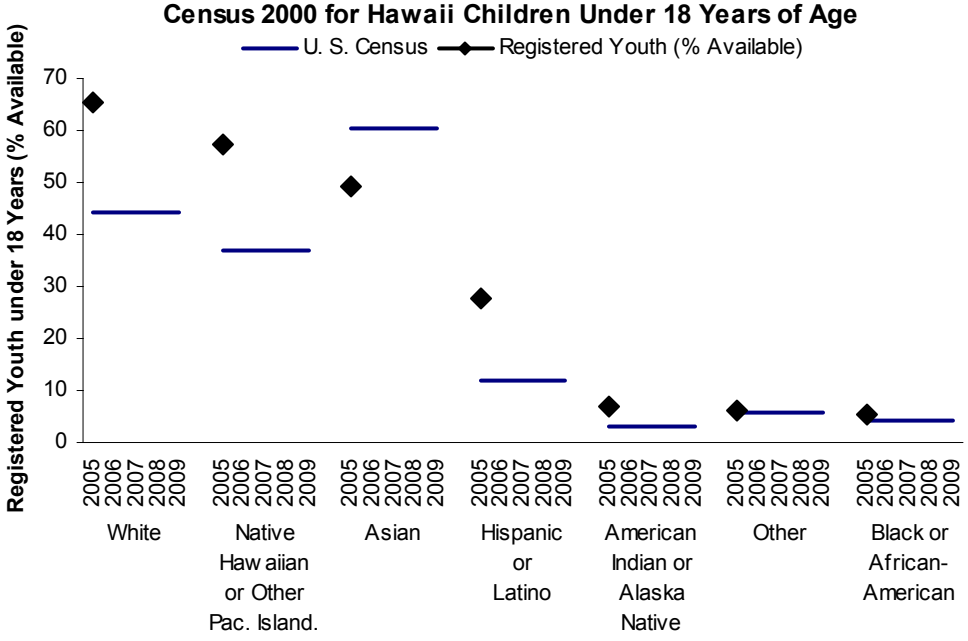


Figure 3. CAMHD Any Racial Group Endorsement Compared to U. S. Census 2000 for Hawaii Children Under 18 Years of Age



Age and Gender

Over the past few years, the CAMHD registered population has trended toward becoming younger with a higher proportion of females. The decline in average age did not continue in FY 2005, but rather stabilized at 14.2 years with a similar distribution to FY 2004 (SD = 3.4 and SD = 3.5). Overall, 35% of the CAMHD population was

female, which increased over FY 2004 prevalence rate of 33% females and thus continued the historical trend. Nevertheless, males were much more likely to receive services from CAMHD.

Agency Involvement and Eligibility for CAMHD Services

During FY 2005, the procedures for gathering information on agency involvement did not change from prior years, but CAMHD did revise its procedures for gathering information about eligibility for services. New fields were developed in CAMHMIS through which the family guidance branch personnel may record the start and end dates of youths' eligibility through CAMHD's Educational Support (ES), Support for Emotional and Behavioral Development (SEBD), or Juvenile Justice (JJ) mechanisms. Youth may be eligible through both the ES and SEBD programs, but JJ eligibility is only identified if the youth is not eligible through either the ES or SEBD mechanisms. Mental health eligibility is also distinguished from agency involvement, such that a youth may be involved with another agency without being eligible for mental health services because of that involvement. For example, a youth involved with special education for a non-mental health-related disability would not necessarily be eligible for CAMHD services through the ES mechanism.

The proportion of registered youth involved with special education continued a multiyear decreasing trend (from a high of 98.5% in FY 2001 to 82.7% in FY 2005). Examination of specific involvement categories reveals decreases in IDEA (56.9% in FY 2005 vs. 64.4% in FY 2004) and Section 504 (12.4% vs. 15.5%), but increases in youth with special education status listed as pending (13.4% vs. 5.2%). The proportion of youth involved with CAMHD's QUEST behavioral health plan continued a multiyear increasing trend (+7% over FY 2004 levels). Department of Human Services involvement (10% of registered youth) has generally remained stable over recent years and fluctuated between 10% and 11%. The proportion of youth with a court hearing (25.2%) or detention or incarceration (7.4%) had been increasing in recent years (by roughly 6 – 7% per year for court hearings and 2 – 3% per year for detention or incarceration), but reversed this trend and backed slightly from the FY 2004 highs (-1.9% of youth with a court hearing; -1.6% detention or incarceration).

The new eligibility recording procedures were implemented along with the revision to the race, national origin, and ethnicity fields. Therefore, data were collected using the old procedures for one half of the fiscal year and the new procedures for the other half. By the end of fiscal year 2005, the new eligibility information was available for 51.1% of all youth registered for one or more days during fiscal year 2005. Of those with eligibility information available, 51.8% were recorded as eligible through the ES mechanism, 73.1% through the SEBD mechanism, and 0.9% through the JJ mechanism. These data are presented as preliminary information only and historical trends are not available due to the revision of the information gathering procedures.

Taken together these findings describe a continuing evolution in the CAMHD population toward fewer youth involved with special education and more youth enrolled in the QUEST behavioral health plan. Although a sizable and stabilizing proportion of CAMHD youth is involved with the juvenile justice system, the vast majority of these youth appear eligible for CAMHD services through the ES and SEBD channels.

Diagnoses

The three most common primary diagnostic categories served by CAMHD were disruptive behavior disorders (25%), attentional disorders (24%), and mood disorders (23%). This is the first year that disruptive behavior disorders were more prevalent than attentional disorders within the CAMHD system. This change resulted from a decrease in the prevalence of attention disorders by 5% from FY 2004 and a small increase in the prevalence of disruptive behavior disorders by 1.4%. Mood disorder prevalence rates increased to a 5-year high, whereas adjustment disorder prevalence reached a new low (6.9%) and continued its five-year declining trend of -1.3% per year on average. Prevalence rates for all other primary diagnostic categories remained stable (< 1% change).

The proportion of registered youth with one or more comorbid diagnoses continued its five-year increasing trend with a change from 68% to 73% between FY 2004 and FY 2005. The average number of diagnoses per youth (M = 1.9) was slightly above its four-year range (1.4 – 1.8) and increased over the FY 2004 level (M = 1.4) that was at the low-end of the four-year range. Nevertheless, the overall five-year trend in the average number of diagnoses per youth is best characterized as fluctuating around a stable value.

When the prevalence of any disorder (primary or additional) in each diagnostic category was examined, the most common diagnostic categories were disruptive behavior disorders (48%), attentional disorders (41%), and mood disorders (37%). Five-year increasing trends continued in the prevalence of disruptive behavior (+1.5% per year), substance-related (+1.2% per year), and anxiety (+1.2% per year) disorders, whereas the five-year decreasing trend continued for adjustment disorders (-1.5% per year). As with the analyses of primary diagnoses, the prevalence of attentional disorders demonstrated an annual decrease (-4.4% from FY 2004), whereas mood disorders increased to yield a significant five-year trend (+1.6% per year) even though the FY 2004 prevalence (31.1%) was slightly below the FY 2003 prevalence (32.1%).

Taken together, these diagnostic analyses highlight that disruptive behavior, attentional, and mood problems predominate among CAMHD youth with the prevalence of disruptive behavior and mood disorders consistently increasing. In addition, the CAMHD population continues an evolution toward more youth with comorbid conditions, particularly anxiety and substance-related disorders and fewer adjustment disorders.

Population Summary

The overall size of the CAMHD population has stabilized with a small movement toward growth. A greater number of geographic regions increased in size, but Kauai continued to decrease. The evolution toward decreasing special education involvement and increasing health care (QUEST) involvement continued. Recent growth in juvenile justice involvement appeared to stabilize. The CAMHD population remains mostly male, but the proportion of females continues to increase. Similarly, the CAMHD population is largely adolescents and the trend toward decreasing age has settled at an average of 14.2 years. Relative to the general population of youth in Hawaii, Asian youth are under-represented in the CAMHD population whereas Hispanic and Multiracial (predominantly White and Native Hawaiian or Other Pacific Islander) youth are over-represented. Youth are increasingly identified with multiple diagnostic problems, the most common being disruptive behavior, attention, and mood with disruptive behavior, mood, substance-related, and anxiety problems increasing.

Service Characteristics

In addition to providing case management services, CAMHD procures mental health services from contracted provider agencies when appropriate. During FY 2005, CAMHD's service array remained stable and with changes being mostly a matter of volume and implementation not structure. However, considerable energy was invested in preparing for significant restructuring of services in FY 2007 with widespread procurement activities to be initiated in FY 2006. During FY 2005, a request for proposals to establish new Multidimensional Treatment Foster Care services was released, but services were not initiated during the year.

Service Population

The number of youth receiving each service during the study period was examined in terms of the proportion of the unduplicated count of all youth receiving service, the total number of youth receiving service during the period, and the monthly average of the number of youth receiving service. The proportion describes the relative pattern of service utilization and adjusts for the decreasing overall population size over the years, but it is also affected by alternative services offered. The total number of youth receiving service during the period provides an absolute indicator of the size of the service, and the monthly average provides a better estimate of the service population size at any given point in time. Historically, the major changes in population have required careful analysis and consideration of both the absolute and relative size of service parameters. Since the overall population size has largely stabilized, the total number of youth receiving services and the relative proportion of youth receiving services are closely correlated between FY 2004 and FY 2005. Therefore, this year's report does not comprehensively describe both of these trajectories across all services analyses, but rather illustrates trends using a single indicator.

The degree of population flow through the service is indicated by the extent to which the monthly average is lower than the total number of youth receiving service (e.g., if all youth received service for the entire period, the monthly average would be equal to the total number served). Therefore, programs with longer lengths of service will have less discrepancy between the unduplicated total count and the average.

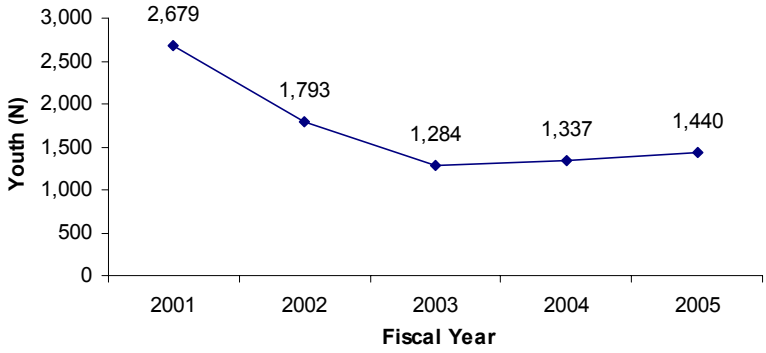
Table 5. Percent, total number, and monthly average of youth receiving one or more days of service by level of care.

Any Services Procured	Fiscal Year					Fiscal Year					Fiscal Year				
	2001	2002	2003	2004	2005	2001	2002	2003	2004	2005	2001	2002	2003	2004	2005
	%	%	%	%	%	Total	Total	Total	Total	Total	Ave.	Ave.	Ave.	Ave.	Ave.
Out-of-State	2.2%	1.5%	1.2%	0.7%	0.6%	60	27	16	9	8	41	15	8	6	7
Acute Inpatient	0.0%	0.1%	0.0%	0.0%	0.0%	1	1	0	0	0	0	0	0	0	0
Hospital Residential	5.7%	6.1%	5.4%	5.8%	6.7%	154	109	69	78	96	42	33	17	18	23
Community High-Risk	0.2%	1.2%	2.1%	1.0%	1.2%	6	21	27	13	17	5	17	17	10	10
Community Residential	8.9%	13.5%	19.9%	24.3%	22.4%	239	242	256	325	323	106	107	99	131	129
Therapeutic Group Home	7.5%	10.0%	13.2%	13.0%	13.2%	200	179	170	174	190	84	78	62	74	77
Therapeutic Foster Home	8.0%	12.7%	15.3%	14.9%	15.6%	213	228	197	199	225	120	129	107	108	126
Respite Home	0.0%	0.0%	0.3%	0.6%	0.6%	0	0	4	8	8	0	0	0	1	1
Intensive Day Stabilization	0.0%	0.0%	0.9%	0.0%	0.0%	0	0	11	0	0	0	0	1	0	0
Partial Hospitalization	2.7%	1.8%	0.1%	0.1%	0.1%	71	32	1	1	1	22	9	0	0	0
Day Treatment	9.3%	1.1%	0.0%	0.0%	0.0%	249	19	0	0	0	135	6	0	0	0
Multisystemic Therapy	9.4%	17.3%	25.2%	21.6%	22.8%	253	310	323	289	328	86	108	107	88	105
Intensive In-Home	38.9%	57.4%	52.8%	52.1%	52.1%	1,043	1,030	678	697	750	522	593	273	306	357
Flex	18.4%	19.3%	21.9%	27.1%	24.8%	494	346	281	362	357	138	92	82	110	113
Respite	6.7%	7.9%	3.8%	4.6%	4.0%	180	141	49	61	58	102	75	20	28	33
Less Intensive	83.0%	35.3%	3.3%	2.2%	1.7%	2,223	633	42	29	24	1,158	281	7	7	5
Out-of-Home Total	27.7%	38.5%	47.2%	52.7%	49.0%	742	690	606	705	706	402	402	333	379	394
Unduplicated Total (% of Registered)	54.9%	57.6%	50.9%	54.6%	58.5%	2,679	1,793	1,284	1,337	1,440					

Note: Acute inpatient was not a standard CAMHD service, but was purchased for youth in unique circumstances; funding for day treatment was transferred to the Department of Education during this period; partial hospitalization services evolved into intensive day stabilization services in fiscal year 2003 which was subsequently procured on an as-needed case-by-case contracting due to low utilization of the standard service.

The total number of youth with services procured increased for the second consecutive year (see Figure 4). The 2005 annual increase of 7.7% was greater than the 4.1% increase of the prior year. As service procurement volume is a primary cost driver for CAMHD, this trend is important to keep in mind during resource planning.

Figure 4. Youth with One or More Services Procured

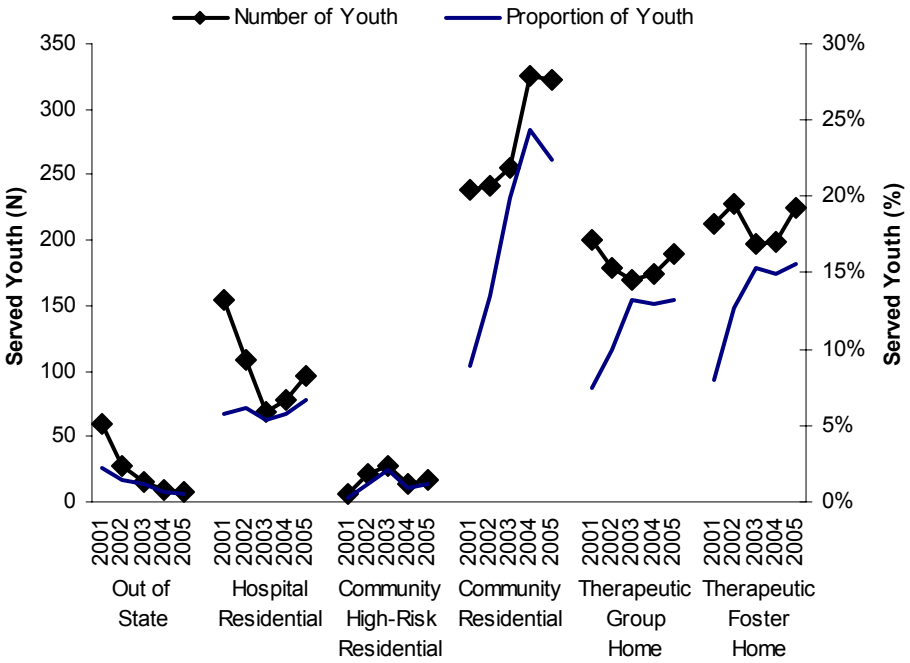


The proportion of the total registered population with services procured also increased by 4% over FY 2004 and achieved a five-year high (58.5%). The long-term pattern is best characterized as a pattern of fluctuation around a stable level rather than as a significantly increasing trend. The annual increase is not surprising given the decreases in the size of the Kauai Family Guidance Center (i.e., Mokihana) population, the number of youth detained or incarcerated, and the number of admissions and discharges, which are all potential drivers of CAMHD registration in the absence of additional service procurement.

The utilization pattern for out-of-home services was somewhat less consistent over the past year. The total number of youth receiving services in an out-of-home setting remained stable (+1 youth), whereas the average number of youth per month increased for the second consecutive year (see Table 5). Because the total number of youth with services procured increased while the number of youth with an out-of-home service remained stable, the proportion of youth served who received an out-of-home service (49%) decreased by 3.7% from FY 2004. When incarcerated and detained youth are not included in the out-of-home service category, the total number of youth with an out-of-home service increased relative to FY 2004. However, the final conclusion is the same - the rate of out-of-home service utilization increased more slowly than the rate of overall service utilization, so that the proportion of youth receiving any out-of-home service declined over the past year.

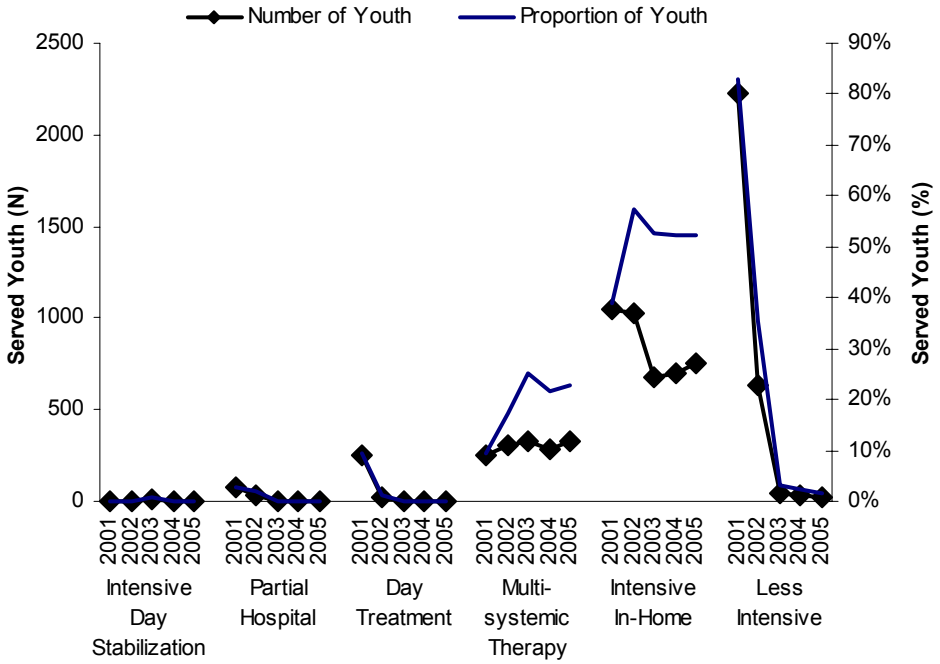
Several notable patterns emerged in the analysis of service utilization across specific out-of-home levels of care (Figure 5). CAMHD continued to be successful at serving youth within the state, whereas the population of youth receiving hospital residential services increased for the second consecutive year. On another positive note, FY 2005 was the first year in which community residential programs did not increase in population, and the number of youth receiving therapeutic group home (TGH) and therapeutic foster home (TFH) care increased. Thus, the overall pattern within the out-of-home service array is for more youth to receive less restrictive care.

Figure 5. Absolute and Relative Size of Out-of-Home Services



The population patterns for the in-home service array support similar conclusions (see Figure 6). Both multisystemic therapy and intensive in-home services grew over FY 2004 levels (+13.5% and +7.6% respectively). The increases in multisystemic therapy returned the program size to approximately FY 2003 levels, but due to increases in the total service population, as a relative proportion of services, multisystemic therapy remains slightly below its peak. The increases in the intensive in-home population approximated the increases in the total service population, so that it did not increase as a relative proportion. Other service populations, including ancillary (i.e., flexibly funded) and respite services, remained fairly stable for the past year.

Figure 6. Absolute and Relative Size of In-Home Services

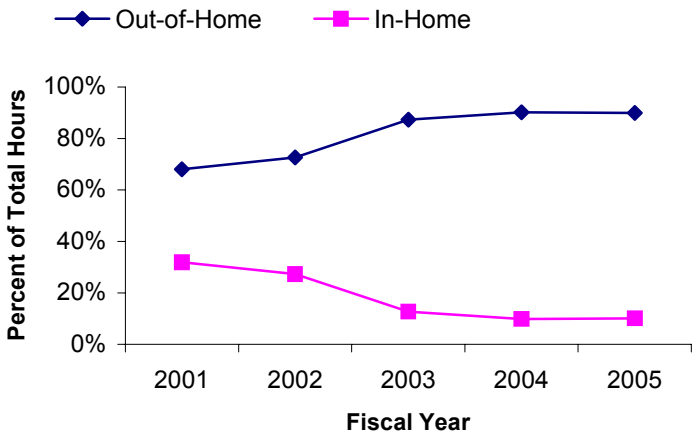


Service Intensity

The intensity of services was examined through analysis of the numbers of hours of service procured. To provide a single indicator across in-home (i.e., home and community) and out-of-home services, one out-of-home service day was assumed to reflect 6.5 service hours. It is important to note that small changes to this conversion value would be expected to have a material effect on the estimated proportion of services that were provided in-home versus out-of-home. Therefore, it is recommended that the actual percent of in-home and out-of-home services should not serve as a basis for decision-making. Nevertheless, the use of a standard conversion value across fiscal years supports interpretation of changes in the relative pattern of services over the course of the study period.

Consistent with the small increase in the total population served, the total number of hours of service purchased statewide increased during the study period from FY 2004 (805,225 hours) to FY 2005 (849,146). This increase was largely accounted for by an increase in the amount of out-of-home services provided (+36,978 hours) and a slight increase in the amount of in-home services provided (+6,982 hours) despite a decrease the previous year. The relative proportion of out-of-home and in-home service hours procured remained stable from FY 2004 to FY 2005 (see Figure 7).

Figure 7: Proportion of Total Hours Procured for In- and Out-of-Home Services



Findings from the analysis of the total hours procured by level of care were similar to findings from the service population analysis. Hospital residential, therapeutic group home, therapeutic foster home, multisystemic therapy, and intensive in-home services all increased.

The total number of hours procured for community residential services decreased.

Service Expenditures

Service expenditures may serve as a proxy variable for service utilization to the extent that total costs are affected by the number of youth served, the intensity and duration of services provided, and the restrictiveness of the service setting. Yet, this proxy becomes less effective to the extent that unit costs change across time and service. During late FY 2004, CAMHD implemented rate increases in unit costs that were not equal across services. Because these cost increases applied throughout FY 2005, total expenditures were expected to increase and expenditure changes over the past year were expected to be a weak proxy of service utilization changes. Therefore, the results are provided to present a general characterization of the system and to describe a new baseline level from which to compare future results.

Consistent with the population growth and the unit rate increases, total service expenditures for FY 2005 showed an increase (43.6 million) over FY 2004 (40.6 million). This increase generalized across both out-of-home (36.8 million vs. 34.7 million) and in-home (5.9 million vs. 6.8 million) services (see Table 6). Expenditures within specific levels of care are illustrated in Figure 8.

Figure 8. Service Expenditures by Level of Care

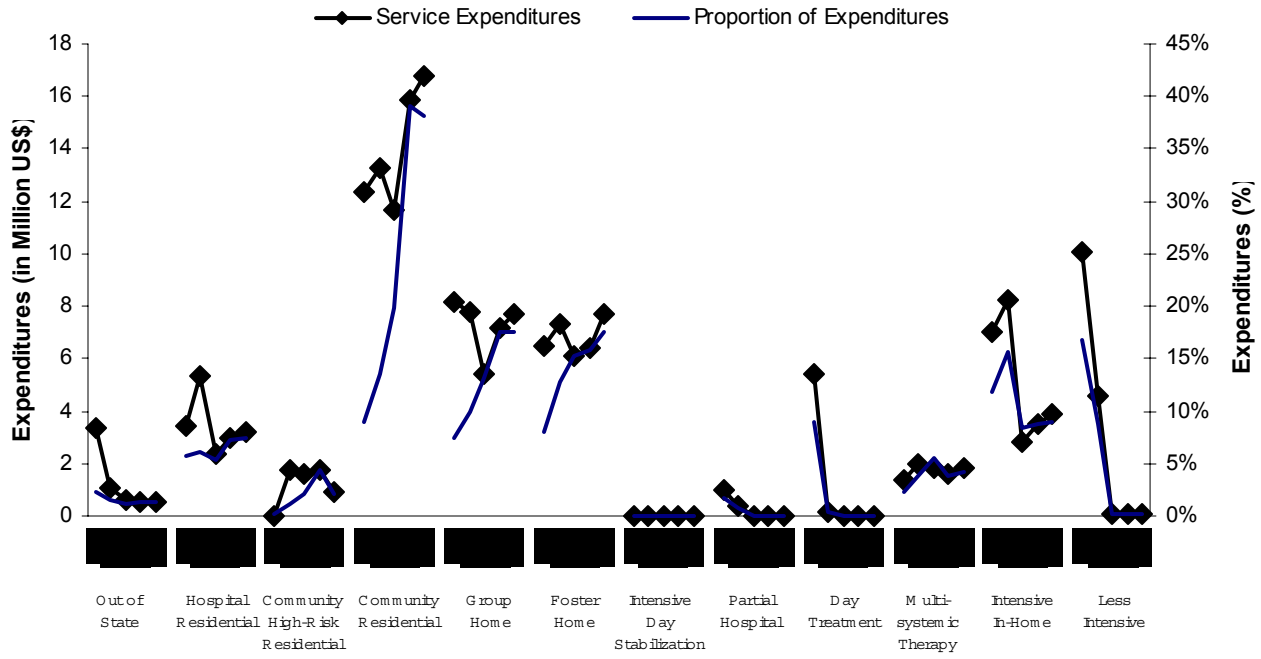


Table 6. Expenditures (US$) per level of care and percent of total expenditures.

For Youth with Services Procured	Fiscal Year 2001 per LOC	2002 per LOC	2003 per LOC	2004 per LOC	2005 per LOC	Fiscal Year 2001 %	2002 %	2003 %	2004 %	2005 %
Out-of-State	3,379,853	1,038,035	639,585	545,151	561,051	5.7%	2.0%	1.9%	1.3%	1.3%
Acute Inpatient	270	1,037	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%
Hospital Residential	3,422,558	5,309,375	2,335,000	2,976,741	3,229,949	5.7%	10.1%	7.0%	7.3%	7.4%
Community High-Risk	0	1,787,940	1,577,565	1,744,575	898,425	0.0%	3.4%	4.8%	4.4%	2.0%
Community Residential	12,372,387	13,241,826	11,643,307	15,857,252	16,742,074	20.7%	25.3%	35.1%	39.0%	38.2%
Therapeutic Group Home	8,192,340	7,742,834	5,445,838	7,150,126	7,715,964	13.7%	14.8%	16.4%	17.6%	17.6%
Therapeutic Foster Home	6,453,979	7,297,919	6,127,659	6,391,266	7,675,600	10.8%	13.9%	18.5%	15.7%	175%
Respite Home	0	0	2,080	3,382	3,300	0.0%	0.0%	0.01%	0.01%	0.0%
Intensive Day Stabilization	0	0	23,000	0	0	0.0%	0.0%	0.1%	0.1%	0.0%
Partial Hospitalization	984,750	368,000	5,026	2,046	6,750	1.6%	0.7%	0.02%	0.01%	0.0%
Day Treatment	5,394,290	179,973	0	0	0	9.0%	0.3%	0.0%	0.0%	0.0%
Multisystemic Therapy	1,382,780	1,987,538	1,832,154	1,571,847	1,820,638	2.3%	3.8%	5.5%	3.9%	4.2%
Intensive In-Home	7,053,293	8,204,245	2,787,366	3,533,494	3,895,394	11.8%	15.6%	8.4%	8.7%	8.9%
Flex	643,294	435,921	603,220	624,511	864,291	1.1%	0.8%	1.8%	1.5%	2.0%
Respite	388,309	253,355	60,478	118,420	175,978	0.7%	0.5%	0.2%	0.3%	0.4%
Less Intensive	10,032,916	4,580,675	68,959	66,148	57,114	16.8%	8.7%	0.2%	0.2%	0.1%
Out-of-Home Services	33,821,386	36,418,966	27,768,953	34,695,112	36,823,062	56.7%	69.5%	83.8%	85.4%	84.0%

Note: Acute inpatient was not a standard CAMHD service, but was purchased for youth in unique circumstances; funding for day treatment was transferred to the Department of Education during this period; partial hospitalization services evolved into intensive day stabilization services in fiscal year 2003 which was subsequently procured on an as-needed case-by-case contracting due to low utilization of the standard service.

Service Stability

Stability of services was investigated by examining the number of provider agencies changes and the number of care coordinator changes that youth experienced per year. Because the bulk of provider agency changes analyzed in prior years were ancillary service (i.e., flex) provider changes, mostly travel provider changes (e.g., airlines), analysis excluded ancillary service providers, which provides a better description of actual mental health service stability. During fiscal year 2005, CAMHD youth experienced provider changes on 762 occasions (an average of 63.5 per month) up from 2004 (721 occasions, an average of 60 per month). Youth in CAMHD experienced care coordinator changes on 1,100 occasions (an average of 92 per month), which is down from 2004 (1,277 occasions, an average of 106 per month). In other words, approximately three out of every ten registered youth experienced a new provider agency during the year and nearly half of all registered youth received a new care coordinator during the year. When only youth with procured services were examined, approximately one out of every two served youth experienced a new provider during the year and four out of every ten served youth received a new care coordinator during the year.

At first glance, it might seem that procured services are somewhat more stable than care coordination services. However, this is not a fair comparison, because the stability of the actual personnel with whom the youth work at provider agencies was not examined and youth receiving services from a single agency may experience therapist changes that are not reported here. Further, analysis of any type of service change across levels of care, including level of care changes within a provider agency, found rates that were nearly identical to the care coordinator change rates (1,084 occasions, an average of 90 per month). Thus, findings results suggest youth may typically experience a change in their service environment and have less than a 50-50 chance of receiving services from an unchanging team of mental health professionals. Service instability may reflect either voluntary choice by families or treatment teams voluntarily or involuntary change due to personnel turnover, contract changes, etc.

Service Efficiency

Analyses from FY 2001 to FY 2003 found that the total number of youth with services procured, the total number of hours provided, and the total service expenditures decreased. Beginning in FY 2004, these trends reversed and the last two years witnessed increases in the total number of youth served, the total number of hours provided, and the total service expenditures. Therefore, further analysis of the relative rates of increase was performed to evaluate system efficiency - the ratio of outputs (e.g., number of youth served, service hours provided) to inputs (i.e., dollars expended). The definition of which variables constitute inputs and outputs implicitly depends on one's perspective, but consistent with prior years, the present analysis viewed the number of youth accessing services as the primary output, the number of hours provided as a mediating factor, and expenditures as the primary input. Accordingly, the efficiency analysis focused on whether the intensity of services (i.e., hours per youth), expenditures per youth, and expenditures per unit of service intensity changed during the study years.

Service Intensity

As previously mentioned, both the total number of hours provided and the total number of youth served increased in FY 2005 as they had in FY2004 from FY 2003. Although analysis of the average number of hours purchased per youth showed a 10% increase (+63 hours) from FY 2003 to FY 2004, the average number of hours purchased per youth showed a 3% decrease (-19 hours). Therefore, the total number of hours provided increased at a slower rate than did the total number of youth served. Thus, more youth are receiving fewer hours of service.

Analysis of the total number of hours procured per youth within each level of care indicated that the typical service intensity has remained relatively stable over the past year, with some exceptions (see Table 7). The hours of therapeutic group home services per youth decreased by 61 hours. This is comparable to a reduction in the length of service by approximately nine days to a typical length of service equal to 125 days in therapeutic group home. In addition, out-of-state services increased by 398 hours per youth (approximately 60 days) and community high-risk residential services decreased by 520 hours per youth (approximately 80 days). The small number of youth and long typical lengths of stay contribute to a high degree of variability in hours for out-of-state and community high-risk residential services that are highly susceptible to changes in population. Altogether, little systematic change has been observed in the service intensity within levels of care across the years.

Service Expenditures

To examine efficiency of expenditures, both the cost per hour of service procured and the total cost per youth were examined. As previously noted, CAMHD issued unit rate increases for service providers during late FY 2004 that were applied throughout the FY 2005 period. Accordingly, the cost per hour of service procured increased as expected (from $50 to $51 per hour).

The increase in cost per hour was offset by the decrease in hours per youth, so that the average cost per youth with services procured remained mostly stable from $30,378 in FY 2004 to $30,415 in FY 2005 (+0.02%; +$59 per youth).

Table 8 presents the cost per hour for specific levels of care. Community high-risk and multisystemic therapy services both have cost reimbursement structures that differ from unit costs. Therefore, cost per hour is closely related to the rate of utilization of these services. The decreased utilization of community high-risk residential and increased utilization of multisystemic therapy were associated with increased and decreased unit costs, respectively.

Table 7. Service hours provided per youth per year at each level of care.

	Fiscal Year				
For Youth with Services Procured	2001 Hours	2002 Hours	2003 Hours	2004 Hours	2005 Hours
Out-of-State	1,558	1,294	1,133	1,522	1,921
Acute Inpatient	-	-	-	-	-
Hospital Residential	530	528	393	390	397
Community High-Risk	1,648	1,835	1,344	1,793	1,272
Community Residential	930	929	794	826	812
Therapeutic Group Home	864	897	727	877	815
Therapeutic Foster Home	1,209	1,233	1,182	1,204	1,124
Respite Home	0	0	42	34	27
Intensive Day Stabilization	0	0	2	0	0
Partial Hospitalization	14	12	0	0	0
Day Treatment	14	12	0	0	0
Multisystemic Therapy	153	136	141	134	136
Intensive In-Home	97	114	77	83	81
Flex	-	-	-	-	-
Respite	-	-	-	-	-
Less Intensive	115	277	10	10	10
Out-of-Home Services	1,168	1,245	1,158	1,157	1,148
In-Home Services	159	207	102	95	95

Altogether, these results suggest that CAMHD's overall service efficiency has remained relatively stable. The unit cost increase was offset by a decrease in the hours provided per youth to yield a relatively stable cost per youth. An overall increase in the number of youth served was associated with a comparable overall increase in total service expenditures.

When interpreting the cost per service unit, it is important to keep in mind that the scaling of these estimates is arbitrary (i.e., they do not represent contracted costs per billable hour) so the actual values should not be interpreted as such. Instead, these estimates were constructed to compare relative efficiencies across study years. For example, the high cost for less intensive services is likely due to the fact that psychosexual assessments, which are performed by high qualified and specialized personnel, accounted for almost all of the less intensive services purchased during FY 2004 and FY 2005, whereas many other less specialized outpatient services were also purchased in prior years. Nevertheless, as previously noted, changes to contracted unit costs would affect these numbers accordingly.

Table 8. Average expenditures (US$) per youth receiving service and per service hours by level of care.

	Fiscal Year					Fiscal Year				
For Youth with Services Procured	2001 $/Youth	2002 $/Youth	2003 $/Youth	2004 $/Youth	2005 $/Youth	2001 $/Hour	2002 $/Hour	2003 $/Hour	2004 $/Hour	2005 $/Hour
Out-of-State	58,273	51,902	53,299	60,572	93,508	36	30	35	40	37
Acute Inpatient	270	1,037	-	-	-	-	-	-	-	-
Hospital Residential	38,028	50,088	37,661	38,163	36,704	42	92	86	98	85
Community High-Risk	-	148,995	98,598	136,506	99,825	-	46	43	76	42
Community Residential	51,767	54,718	45,482	49,094	51,833	56	59	57	59	65
Therapeutic Group Home	40,962	43,256	32,034	41,093	40,610	47	49	44	47	50
Therapeutic Foster Home	30,300	32,008	31,105	32,279	34,114	26	26	26	27	28
Respite Home	-	-	520	423	413	-	-	12	12	15
Intensive Day Stabilization	-	-	2,091	-	-	-	-	322	-	-
Partial Hospitalization	13,870	11,500	5,026	2,046	6,750	-	-	-	-	-
Day Treatment	21,664	9,472	-	-	-	-	-	-	-	-
Multisystemic Therapy	6,523	6,974	5,725	5,439	5,551	38	59	46	75	73
Intensive In-Home	6,763	7,965	4,111	5,070	5,194	70	70	54	61	64
Flex	1,302	1,260	2,147	1,725	2,421	-	-	-	-	-
Respite	2,157	1,797	1,234	1,941	3,034	-	-	-	-	-
Less Intensive	4,513	7,236	1,642	2,281	2,380	41	31	130	130	130

Therapeutic Practices

During the fiscal year 2004 evaluation, in-depth analyses of therapeutic practices were performed as part of the broader evaluation of evidence-based services. Last year was the first time that results from the structured Monthly Treatment and Progress Summary (MTPS; CAMHD 2003), by which the provider network reports the treatment practices and child progress on a monthly basis, were publicly released along with results from the Evidence-Based Services (EBS) committee coding of the specific practices (i.e., practice elements) of the empirically supported treatment protocols. To promote ongoing monitoring and follow-up regarding this key outcome of practice development activities, therapeutic practice analyses are integrated into the broader service analysis section of this year's evaluation.

Summary of Fiscal Year 2004 Findings

Consistent with much of the national research literature, CAMHD's core strategy for identifying evidence-based services is based on matching empirically supported treatments to specific problem areas. Analysis of the reliability with which CAMHD identified problem areas (i.e., diagnoses and treatment targets) indicated that such identification practices were mediocre but evinced some validity. The same was concluded regarding CAMHD's practice assessment. Meaningful relationships were evident using CAMHD's practice codes, but continued training and refinement for the assessment of actual care was recommended.

Comparing the empirically supported practices identified in the research literature to the practices reported as part of actual care led to several findings. First, treatment for the four most prevalent problem areas (i.e., attention and hyperactivity, disruptive behavior, depressed and withdrawn, and anxiety and avoidant) included a moderate number of empirically supported practices. Second, treatment of these problems also included a moderate number of practices that were not empirically supported. Third, when evidence-based practices were reported, they tended to be of greater variety and of less frequently supported practices than the average structured treatment protocol. Finally, treatment for youth with single "pure" disorders was not notably more congruent with structured treatment protocols than was treatment for youth with "primary" disorders, which may include comorbid conditions. However, as expected due to comorbidity, a somewhat wider variety of practices were used with the primary diagnostic group.

Fiscal Year 2005 Follow-up Analysis

During fiscal year 2005, the results of the fiscal year 2004 were disseminated through a variety of mechanisms including publication in the annual evaluation, posting on the CAMHD website, and a variety of presentations to various stakeholder groups including the CAMHD state management team, provider network meetings, and several quality review committees. These dissemination activities may be characterized as a systemic feedback intervention that used limited mass media approach and an interpersonal leadership networking approach. These strategies did not include a centralized, formal, and coherent initiative targeting training, mentoring, and consultation to direct service personnel. During fiscal year 2005, changes to direct service activities, if any, would thus be mediated by local action of the administrative and clinical leaders who received the evaluative feedback.

The annual evaluation results were initially released approximately six months through fiscal year 2005, with the leadership feedback intervention implemented during the second half of the year. Therefore, the opportunity for secondary dissemination of the findings to direct service personnel and implementation of alternative practices was limited to a few months during the end of fiscal year 2005. Therefore, relatively little systemic change was expected after this brief intervention period. Therefore, the results from fiscal year 2005 are probably best viewed as a replication of the fiscal year 2004 baseline assessment, rather than follow-up results from the first year of an intervention.

However, statewide practice development efforts have been ongoing for years, even though a specific large-scale development initiative has not explicitly targeted use of therapeutic practices. To the extent that current evidence-based practice development initiatives were effective in disseminating evidence-based services, then evolution in the actual care practice profiles to more closely approximate the evidence-based practice profiles would be expected. Thus, results are presented to continue the public monitoring and feedback related to the most common practices reported by providers in actual care and to compare those practices to those most commonly supported in the research literature reviewed by the EBS committee.

Review of Table 9 and Figures 9 to 12 indicates that very little change occurred in the nature of the therapeutic practices from FY 2004 to FY 2005. Within the attentional and disruptive behavior disorder, the total number of practices endorsed increase, but the relative use of evidence-based to non-evidence-based services was unchanged. Across all problem areas, the year-to-year profile intercorrelations were .99, which indicated nearly identical relative rank ordering to the use of practices.

Altogether, these analyses describe a pattern of stability in practice reporting. Current practice development efforts did not yield change in provider reports of therapeutic practices. There are several limitations to these analyses that are important to consider before generalizing these results. Notably, these analyses are based on annual averages and do not take into account the time course of interventions (e.g., time since youth admission). These averages also aggregate across provider agencies, so they do not effectively measure and control for within provider change. Finally, there are still signs of some confusion about how providers should be reporting their practices. For example, a number of providers are marking the "other" category and then writing in acronyms (e.g., DBT), which may (or may not) indicate structured treatment protocols (e.g., Dialectic Behavior Therapy) without identifying the specific practices from those protocols that are being employed. It is recommended that practice development personnel provide ongoing training in practice reporting and clearly provide example practice profiles for the therapeutic practices that they are disseminating through training, mentoring, and consultation.

Table 9. Comparison of the practice elements present in treatment protocols rated in the category *Level II Good Support* or better by the EBS committee to the practice elements reported as used in the actual care of youth served by the CAMHD provider network.

	Average Number of Practices (Average Number of EBS Practices)			Average Weight per Practice		
Primary Disorder	Ave. EBS Protocol (≥ Level II)	FY 2004 Average Case	FY 2005 Average Case	Ave. EBS Protocols (≥ Level II)	FY 2004 Average Case	FY 2005 Average Case
Anxiety or Avoidant	4 – 5	20 (12)	20 (12)	51%	9%	9%
Attention or Hyperactivity	9	19 (8 – 9)	21 (9 -10)	66%	18%	18%
Depressed or Withdrawn	9	20 (10)	20 (10 – 11)	54%	22%	22%
Disruptive Behavior	8	19 (11)	20 (11 – 12)	48%	20%	19%

Service Summary

Service within the CAMHD system evolved at a measured pace during FY 2005. More youth were served and a greater proportion of those were served in their home and community. The intensity of services per youth was reduced, which offset unit rate increases, so that the service efficiency in terms of cost per youth remained stable. The use of hospital residential services increased during the year, so some of the historical gains are being lost. However, for the first time, community residential service utilization stabilized rather than increased. Multisystemic therapy use has rebounded from its decreased utilization in FY 2004. Youth were less likely to experience a change in their care coordinator over the past year, but changes to the service team remains a common experience for consumers within the CAMHD system. Finally, the little change was evident in the overall pattern of therapeutic practices provided for youth.

Figure 9. Attention and Hyperactivity. Practice element profiles illustrating the percent of study groups coded as qualifying in the category *Level II Good Support* or better, the proportion of youth with a primary diagnosis (Dx) that actually received each practice element for one or more months during fiscal years 2004 and 2005, respectively. Solid symbols identify those practice elements that were included in at least one qualifying research study and open symbols indicate practice elements that were not included in the qualifying studies.

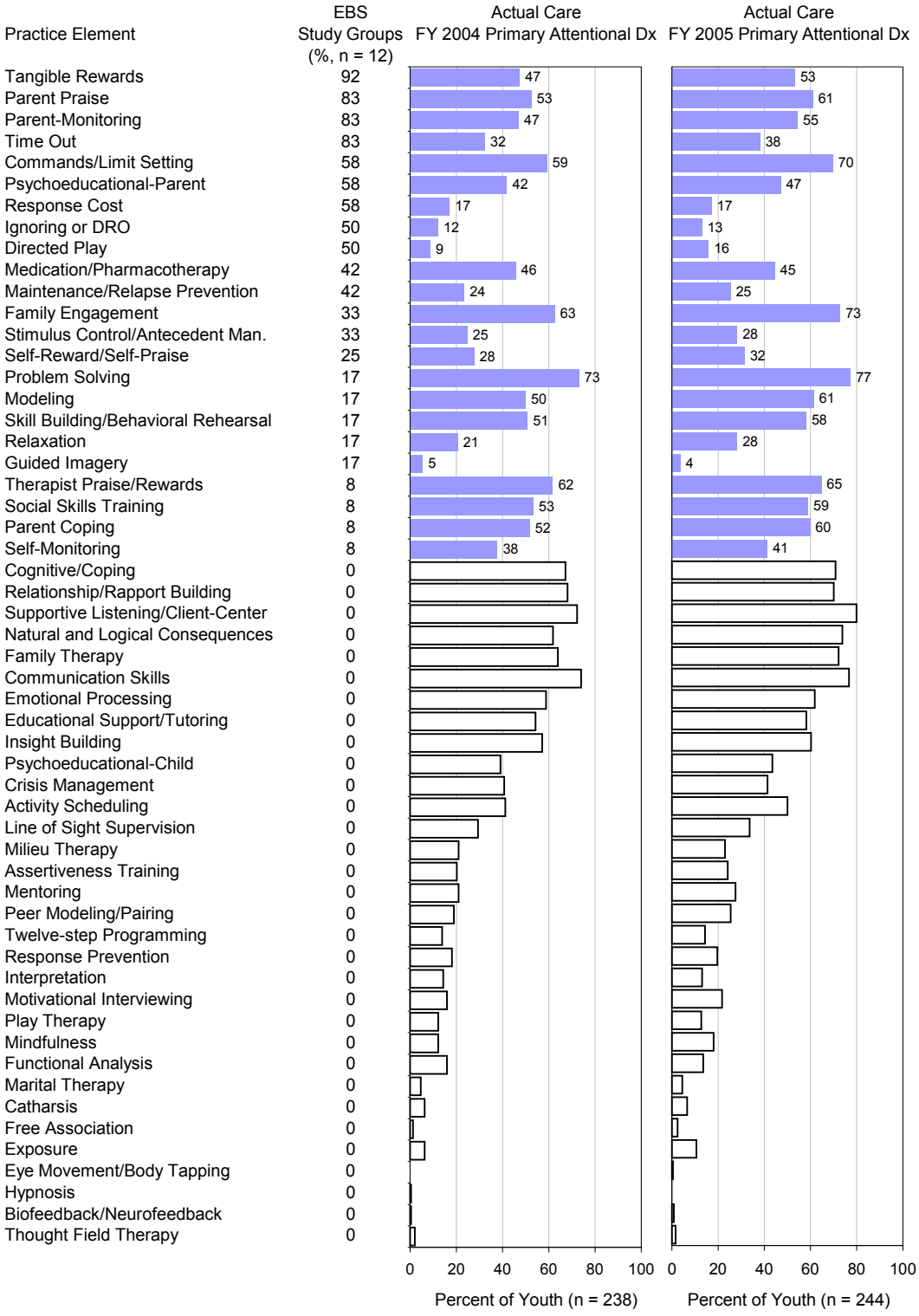


Figure 10. Disruptive Behavior. Practice element profiles illustrating the percent of study groups coded as qualifying in the category *Level II Good Support* or better, the proportion of youth with a primary diagnosis (Dx) that actually received each practice element for one or more months during fiscal years 2004 and 2005, respectively. Solid symbols identify those practice elements that were included in at least one qualifying research study and open symbols indicate practice elements that were not included in the qualifying studies.

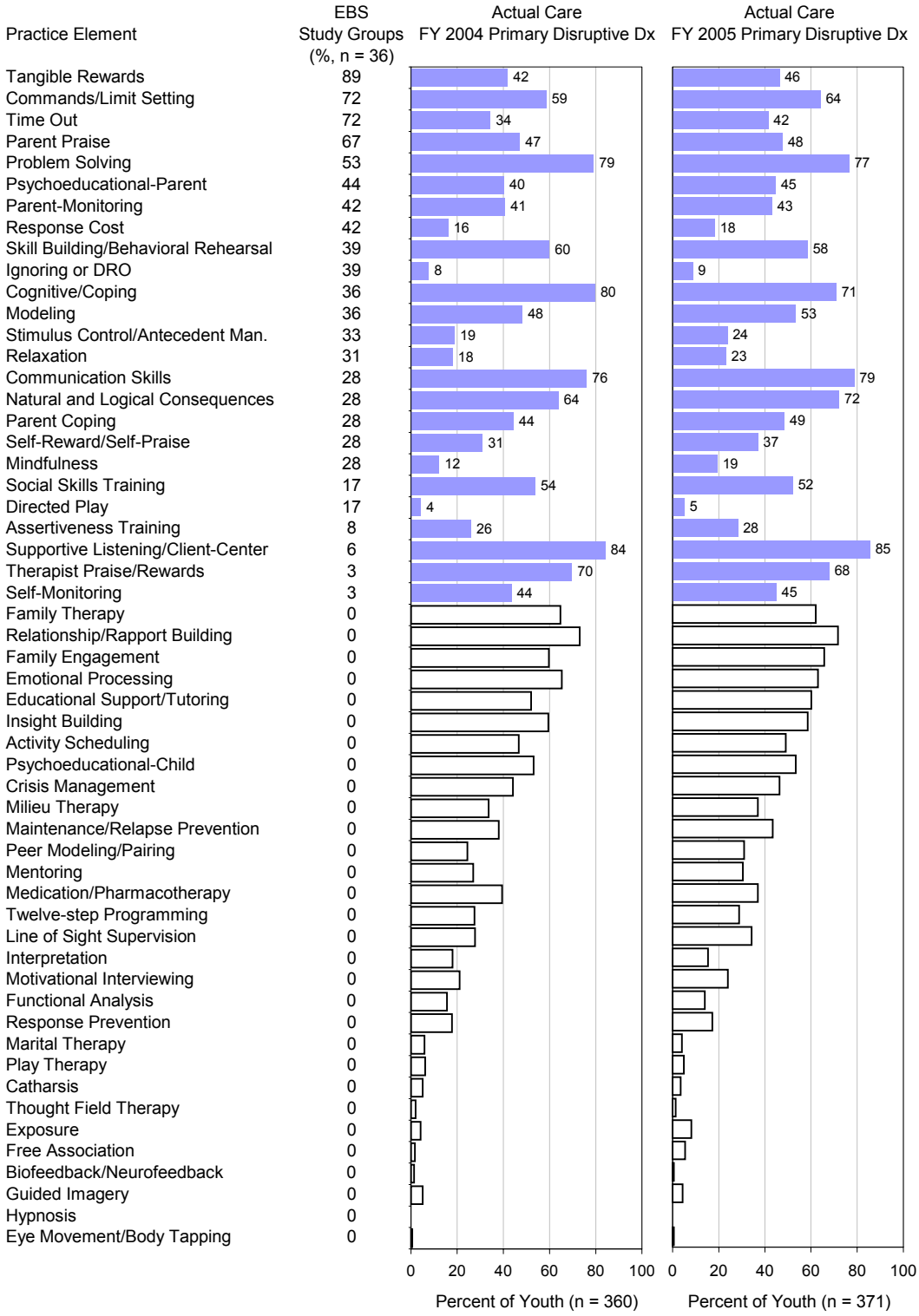


Figure 11. Depressed and Withdrawn. Practice element profiles illustrating the percent of study groups coded as qualifying in the category *Level II Good Support* or better, the proportion of youth with a primary diagnosis (Dx) that actually received each practice element for one or more months during fiscal years 2004 and 2005, respectively. Solid symbols identify those practice elements that were included in at least one qualifying research study and open symbols indicate practice elements that were not included in the qualifying studies.

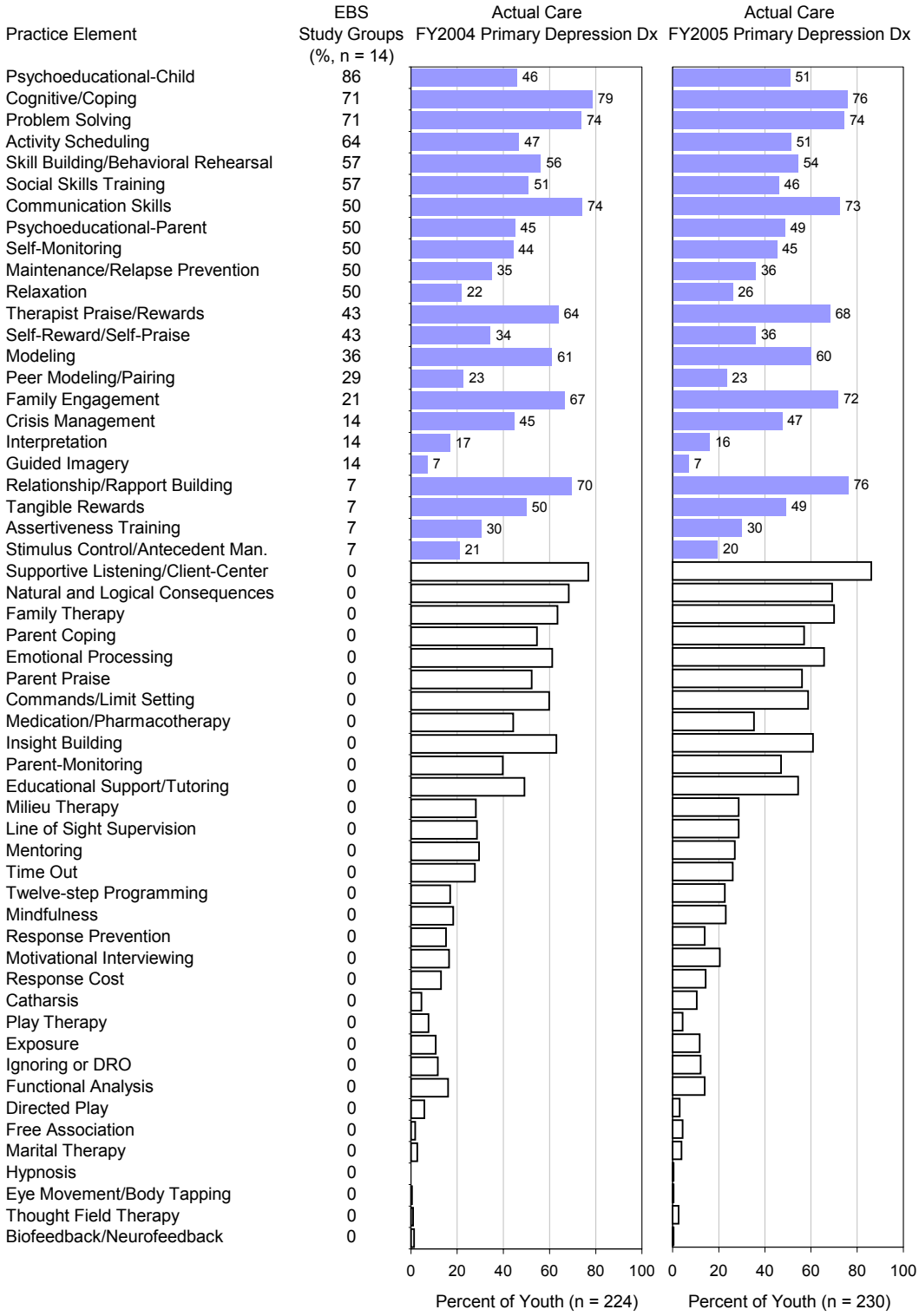
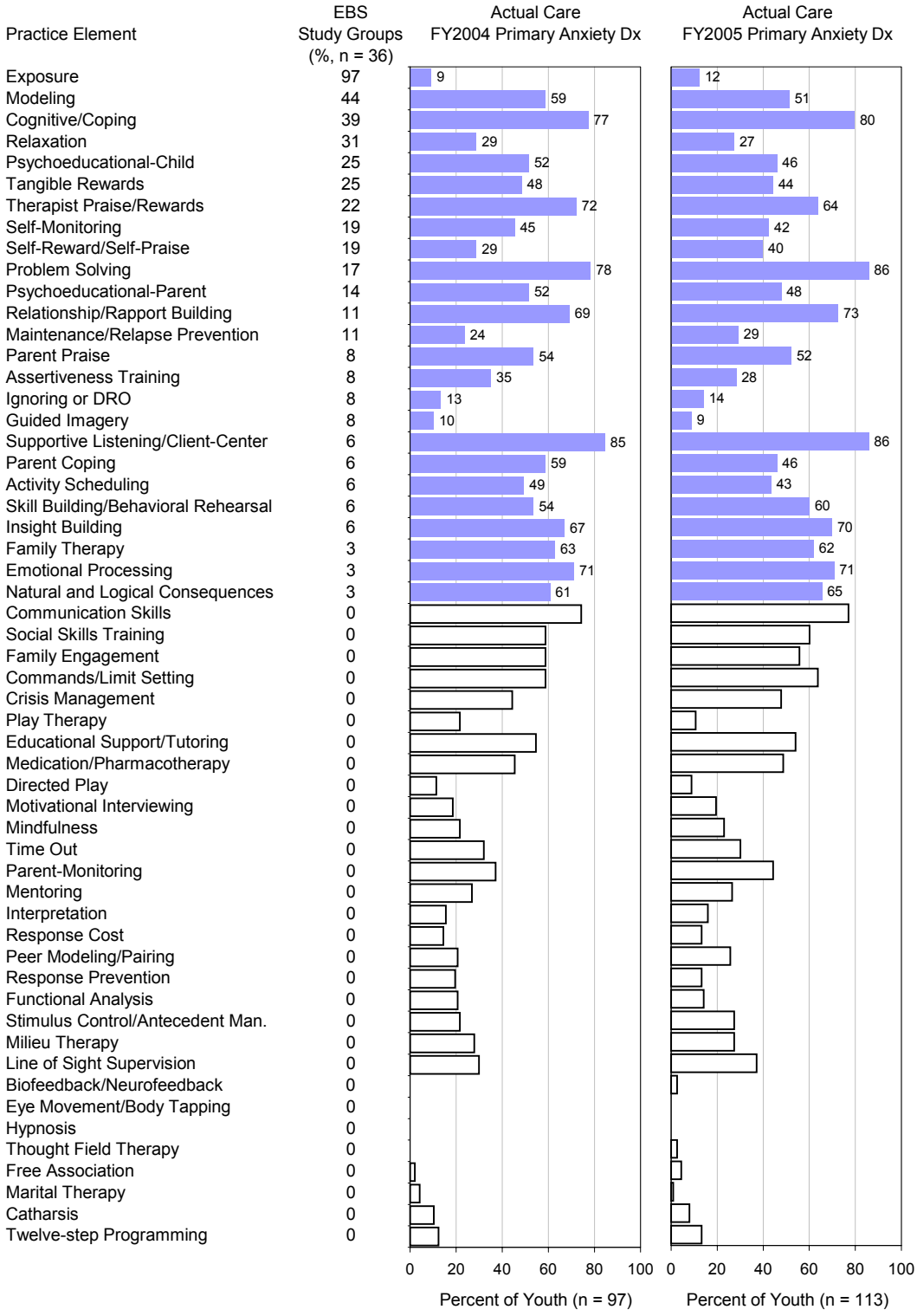


Figure 12. Anxiety and Avoidant. Practice element profiles illustrating the percent of study groups coded as qualifying in the category *Level II Good Support* or better, the proportion of youth with a primary diagnosis (Dx) that actually received each practice element for one or more months during fiscal years 2004 and 2005, respectively. Solid symbols identify those practice elements that were included in at least one qualifying research study and open symbols indicate practice elements that were not included in the qualifying studies.

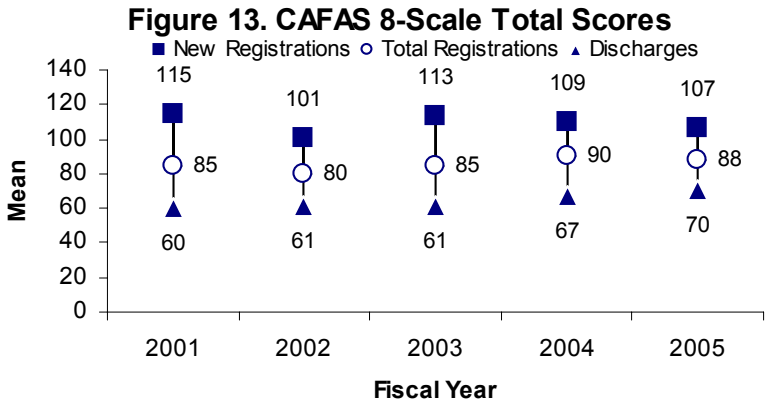


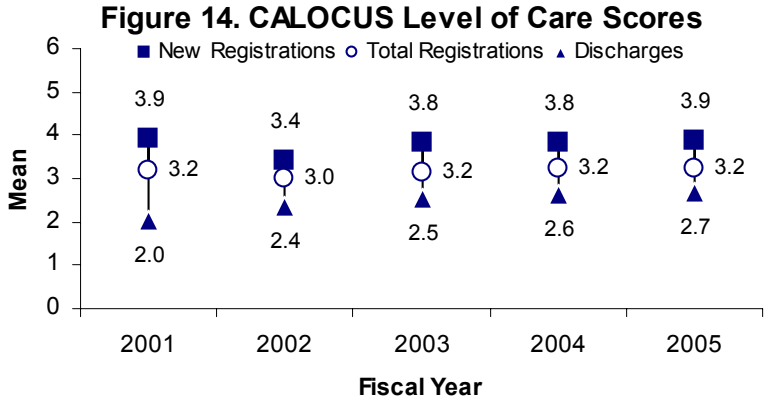
Child Status Characteristics

To examine child functioning and level of service needs, the eight-scale total score from the Child and Adolescent Functional Assessment Scale (CAFAS) and the level of care score from the Child and Adolescent Level of Care Utilization System (CALOCUS) were used as primary outcome measurements. CAMHD has also developed procedures for collecting the Achenbach System of Empirically Based Assessment (ASEBA) parent (CBCL), teacher (TRF), and youth (YSR) report forms, but statewide completion rates remain poor for these measures, so results from the ASEBA are not reported here.

The first analysis examined the child status scores for the annual population. For FY 2005, three scores were calculated (a) the average score within three-months of admission for the group of youth admitted during the year, (b) the average score across all assessments conducted during the year for all youth with one or more assessments, and (c) the average score within three-months prior of discharge for the group of youth discharged during the year. These scores describe the average status for youth entering, active, and leaving the CAMHD system during the year, but they do not describe changes within an individual over time.

As a guideline for interpreting the CAFAS, scores of 50 – 90 indicate a need for services beyond outpatient care and scores of 100 – 130 indicate the need for intensive services with multiple supports. Further, a score of 80 on the CAFAS represents the point of functional impairment that qualifies a youth as severely emotionally or behaviorally disturbed (SEBD). Across, the past few years, the new registration and total registration scores have fluctuated but generally vary around their grand means of approximately 109 and 86, respectively. This pattern generally continued during FY 2005 and these averages were within the 95% confidence intervals. Specifically, the 95% confidence range of average CAFAS scores for youth newly admitted to the system was 104 – 110 in FY 2005 (N = 456), whereas the 95% confidence range for average functioning of all youth was 86 – 89 in FY 2005 (N = 1,644). A different pattern emerged for discharged youth. In FY 2004, it was noted that the average score for discharged youth had increased and that continued monitoring was recommended to determine if this was a trend or a sampling fluctuation. In FY 2005, the average CAFAS score for discharged youth again increased with a 95% confidence of 66 – 74 in FY 2005 (N = 313). Further examination found that the average scores for discharged youth have significantly increased across time.





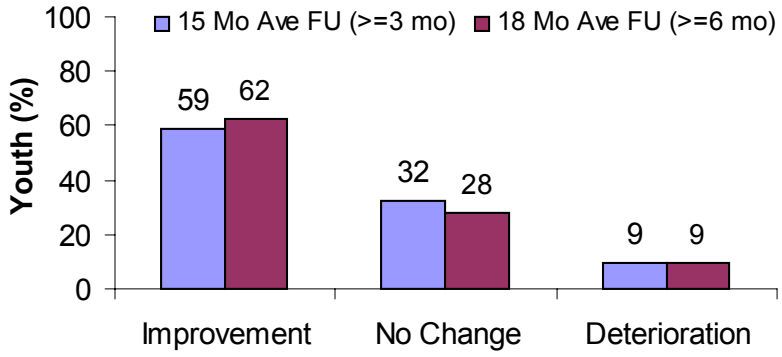
The CALOCUS analyses replicated the findings from the CAFAS. Namely, that the new registration and total registration scores have remained stable, but that in recent years, youth are being discharged with higher levels of service needs. Specifically, the 95% confidence range of average CALOCUS scores for youth newly admitted to the system was 3.7 – 4.0 in FY 2005 (N = 379). The 95% confidence range for the average functioning of all youth was 3.2 – 3.3 in FY 2004 (N = 1,440). For discharged youth the confidence intervals was 2.5 – 2.9 in FY 2005 (N = 264). As a

guideline for interpreting the CALOCUS, a score of 2 indicates a need for outpatient services, a score of 3 indicates a need for intensive services, and a score of 4 indicates a need for multiple intensive integrated services.

Taken together, the CAFAS and CALOCUS results show that the average youth entering the CAMHD system was in need of multiple integrated intensive services and supports. On average, all youth in the system were in need of intensive services and case management beyond basic outpatient care. Finally, youth discharged from the system remained in need of outpatient services and with the changes of recent years; some of these youth may remain appropriate for more intensive programming.

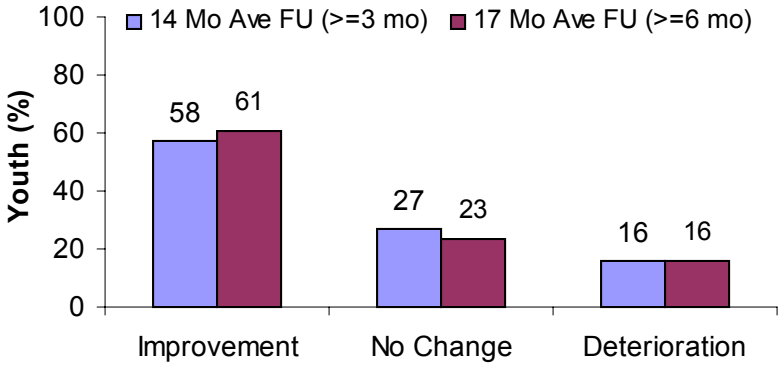
To the extent that population-based estimates of intake, average, and discharged scores describe a decreasing pattern that remains stable over time, it is likely that the functioning of individual youth was improving as services progressed from intake to discharge. Nevertheless, population-based analyses do not directly describe changes within individuals across time. To examine intra-individual change, baseline and follow-up scores were identified for individual youth, and an indicator of reliable change using a 95% confidence level was calculated (Jacobson and Truax, 1991). For each youth, the registration episode of interest was defined as the most recent period of registration with a six month or longer length of service. The baseline assessment was defined as the highest score received within three months of admission. The follow-up measure was defined as the most recent assessment that was completed three or more months after the baseline assessment (or six or more months after baseline).

Figure 15. Reliable Change on CAFAS 8-Scale Total



The reliable change analysis lead to similar conclusions in FY 2005 as in prior years. Approximately, 60% of youth demonstrate reliable improvement with service and approximately 10 – 15% show reliable deterioration. Specific estimates vary around these generalizations depending on the measure examined, the required length of the follow-up period, and the reporting period. Similarly, when the effect sizes were examined, the average change on both the CAFAS and the CALOCUS ranged across follow-up period lengths from approximately +0.9 SD to +1.1 SD over the baseline measure (N = 997 and 787 for CAFAS; N = 796 and 640 for the CALOCUS).

Figure 16. Reliable Change on CALOCUS Level of Care

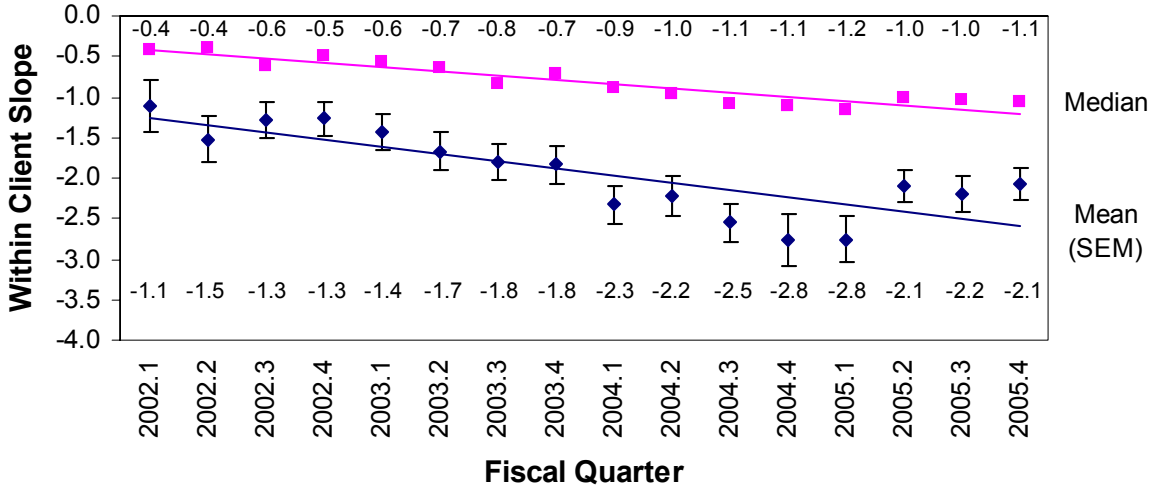


Last year's evaluation described a special study that examined changes in the average rate of child improvement across recent years (Daleiden, 2004). Although this special study was not repeated during FY 2005, the analysis was updated to describe the typical rate of change observed on the CAFAS. Specifically, the slope of the best line for each youth with at least two valid assessments between their current episode admission and the end of each fiscal quarter during the reporting period was calculated. In other words, the typical monthly rate of change was calculated for each youth during their active service episode. These analyses are summarized in terms of the mean and median rate of change observed. These analyses were similar to the reliable change analysis in spirit (i.e., it is an indication of intra-individual change), but it allowed for larger sample sizes because neither a baseline assessment nor a follow-up period of specified length were required. These analyses also use information from all available

assessments conducted during the active service episode whereas the reliable change analysis only uses data from two assessments (i.e., baseline and follow-up). However, these analyses do not adjust for measurement error, whereas reliable change analyses explicitly incorporate measurement error.

Overall, similar conclusions were reached in this year's analysis of the typical rate of change, that is, youth were improving more rapidly during FY 2005 that they were in FY 2002. However, the FY 2005 did not witness additional gains along this dimension. In fact, the rate of child improvement through most of FY 2005 was comparable to the rate of improvement in early FY 2004.

Figure 17. Rate Change per Month on the CAFAS 8-Scale Total Score during Current Service Episode



The FY 2005 evaluation elaborated upon the analysis of service outcomes by associating child status measures to episodes of service at specific levels of care. This is a challenging activity because the child status measures are routinely administered on a calendar schedule (i.e., quarterly) and service episodes must be inferred from daily billing records submitted by providers (not specific enrollments by providers). As this was a new domain, the analytic strategy erred on the side of applying strict selection criteria that would tend to reduce the sample size and potentially sacrifice the generalizability of findings in the interest of achieving conceptual clarity about the smaller population of youth targeted for analysis.

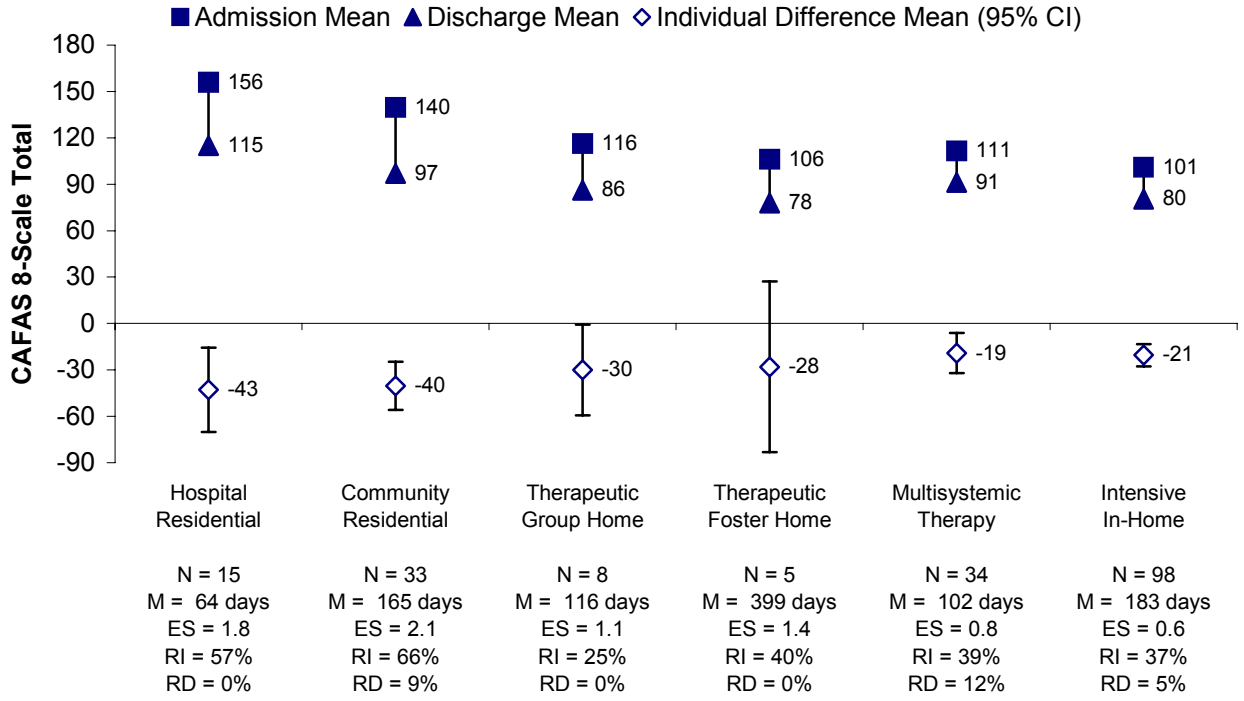
Specifically, service episodes were defined using the criteria of a 30-day break in billing records as indicating a new episode (except for hospital residential service which used a 5-day break in service). Thus, the date of the first billing claim for a specific level of care was defined as the admission date and the date of the last billing claim that was followed by a 30-day period with no additional billing claim at that level of care was defined as the discharge date. The admission score was defined as child status assessment that was (a) closest to the admission date, (b) was within 45-days prior to the admission date, and (c) was within 30-days following the admission date. The discharge score was defined as child status assessment that was (a) closest to the discharge date, (b) was within 30-days prior to the discharge date, and (c) was within 45-days following the discharge date. Only youth with both CAFAS and CALOCUS assessments at both admission and discharge were included in this analysis. To allow at least a one-year follow-up interval for services, youth with registration episodes that began during FY 2003 and 2004 (July 1, 2002 through June 30, 2004) were selected and all services provided through the end of FY 2005 (June 30, 2005) were considered in identifying service discharges. To further clarify the service conceptualization, only the first episode of services received during the period was examined.

Taken together, this analysis describes the average improvement for youth during the first service received when entering CAMHD. Theoretically, this is the service that the child and family service team determined to be most appropriate to the child's current problem and life situation near the time of entry into CAMHD.

The final sample size of youth with complete data available was 193 youth from an eligible population of 525 youth, which was equivalent to a 37% response rate. The final sample size and proportion of youth with complete data available by level of care was hospital residential (N = 15, 50%), community residential (N = 33, 50%), therapeutic group home (N = 8, 35%), therapeutic foster home (N = 5, 25%), multisystemic therapy (N = 34, 34%), and intensive in-home (N = 98, 34%). As is apparent, the data availability rates were not randomly distributed across the levels of care. For example, complete data were only available for 25% of youth receiving therapeutic foster home as their first service and the final sample was very small. Thus, other factors are likely contributing to differential exclusion of youth (e.g., longer lengths of service were associated with lower data availability). Yet, the relative proportion of each service in the final sample approximated the distribution for the eligible population. Nevertheless, each level of care should be treated independently for interpretation.

The average admission, discharge, and change (i.e., intra-individual difference) scores are presented for the CAFAS (Figure 18) and CALOCUS (Figure 19). Both of these measures support similar conclusions. Youth in all services except for Therapeutic Foster Home showed significant improvements during the course of their services (i.e., the 95% confidence interval of the change scores does not include zero). At the high-end of the service array, the magnitude of this improvement was on the order of 40 points on the CAFAS and 1.5 levels on the CALOCUS, which equated to effect size sizes of approximately 2 standard deviations. When reliable change indices are examined, approximately 60 – 65% of youth show reliable improvement and few show deterioration. Thus, these high-end services are associated with very high levels of improvement such that very high levels of impairment and service need are significantly reduced to high levels of impairment and service needs that are appropriate for continued intensive services.

Figure 18. CAFAS admission, discharge, and change score by service type

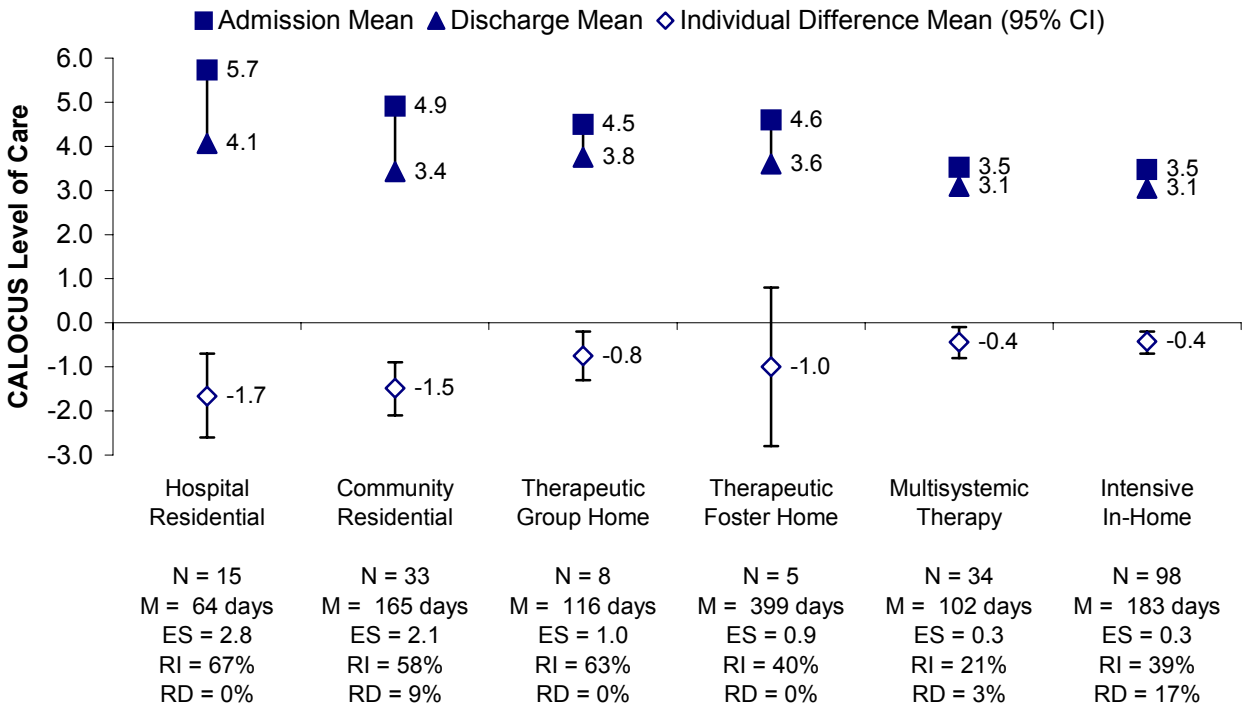


Note: M = mean length of service; ES = effect size; RI = reliable improvement; RD = reliable deterioration

The very small sample sizes for therapeutic group and foster homes limit the conclusions that may be drawn. The information that is available suggests that youth typically improve during therapeutic group home services, and that improvement is on the order of 30 points on the CAFAS and just below 1 level on the CALOCUS. This translates to an effect size of roughly one standard deviation. The proportion of youth showing reliable improvement was higher on the CALOCUS than the CAFAS and no youth showed reliable deterioration on either measure. The therapeutic foster home analysis yielded similar point estimates, but the differences may be due to sampling error. Thus, the

limited evidence suggests that these mid-level services are associated with considerable improvement such that high levels of impairment and service needs are reduced to moderate levels of impairment and service needs that may still be appropriate for continued intensive services.

Figure 19. CALOCUS admission, discharge, and change score by service type



Note: M = mean length of service; ES = effect size; RI = reliable improvement; RD = reliable deterioration

At the intensive home- and community-based end of the service array (i.e., multisystemic therapy and intensive in-home services), youth experienced improvements on the order of 20 points on the CAFAS and just below a half-level on the CALOCUS. In terms of effect size, this is somewhat higher on the CAFAS (approximately 0.7) than the CALOCUS (0.3). Relative to the higher levels of care, the variability in admission scores on the CAFAS for intensive home- and community-based services is lower whereas the variability in admission scores on the CALOCUS is considerably higher. In other words, youth enter intensive home- and community-based services at a relatively consistent level of impaired functioning, but may differ dramatically in their service needs. These differences in variability directly influence the effect size estimates because the standard deviation of admission scores serves as the denominator in the effect size calculation. Slightly more than one-third of youth showed reliable improvement, whereas approximately one out of six youth showed reliable deterioration on some measure. Taken together, these data indicate that these intensive home- and community-based services are typically associated with significant improvements, such that high levels of impairment and service needs are reduced to moderate levels of impairment and service needs. Yet, use of these services is a bit more of a gamble because improvement is not highly consistent and deterioration is relatively more common.

In general, these findings describe a system that is functioning pretty much as designed. Youth with more severe impairments receive higher levels of care. Outcome improvements are evident across most services, with the exception of therapeutic foster home, for which findings remain inconclusive. The major challenge to the system that is apparent from these analyses is that services seem effective at returning youth to a moderate level of impairment, but no service had average discharge scores in the low level of impairment range. As previously noted, this may result in part from discharges of youth with moderate levels of impairment following a period of

improvements in functioning. Alternatively, it may be that the CAMHD services are effective at helping youth get better (e.g., reducing harm), but not get "well" (e.g., maximize well-being).

These results fit the commonly described pattern that higher levels of impairment at admission are associated with greater magnitudes of change during services. Because these higher levels of impairment at admission also coincide with provision of more intensive and restrictive services, it is impossible to discriminate what portion of these changes are attributable to statistical, measurement, and population effects from "true" service effects. Nevertheless, from the perspective of the service selection decision-makers this pattern of findings may tend to support the perceptions that (a) more intensive and restrictive services are associated with better improvements and (b) youth are less likely to deteriorate if intensive and restrictive services are provided as treatments of first choice. From this vantage point, it is not surprising that apparent conflict would emerge between values of rapidly improving outcomes and values of less restrictive, most cost effective services for the population.

While understandable, this perspective is not a technically proper description of the decision-making situation. When selecting services for a youth, decision-makers are faced with the choosing from among the available opportunities for a given youth. This is comparable to asking what is the probability of successful outcomes in each service given a specific status at admission. For example, given a youth with admission scores of 120 on the CAFAS and 4 on the CALOCUS, the decision-maker seeks to estimate the improvements likely to result from each of the available services. The current analysis does not answer this question. In fact, preliminary analyses found no significant differences in discharge scores by type of service after controlling for admission scores. Given the differential measure completion rates and modest sample size, these full analyses are not reported here and are only noted as suggestive, not conclusive findings that obvious differential treatment effects are not regularly noted. Properly answering this question would require a generalizability study in which youth matched on key characteristics at admission are randomly assigned to services then measures their degree of improvement.

Several research and evaluation workgroups are working to perform more in-depth analysis of these data and to identify predictors of better outcomes. It is expected that the findings will be released as technical reports during FY 2006. In general, preliminary results are similar to the overall findings reported in the fiscal year 2003, namely that youth with older age and disruptive behavior disorders are less likely to improve.

Child Status Summary

In general, the child status findings describe a system that is basically working as designed. For the most part, the conclusions from the child status analysis were similar in FY 2005 to prior years. Both population-based and individual analyses found that youth entering CAMHD show improvements with services. Youth tend to enter CAMHD with impairments that call for multiple intensive and integrated mental health services and the majority of youth show reliable improvements in functioning upon receipt of services. The rate at which youth are showing improvements did not continue its increasing trend but remains better than several years ago. As noted last year, these improvements were quite promising, but continued room for improvement remains. Although youth are effectively helped to achieve a moderate level of impairment, continuing progress to achieve low level of impairment remains a challenge.

Population-based analysis found that upon discharge, youth displayed more problematic functioning and greater service needs than youth discharged in prior years. This trend merits additional attention. This change is occurring in the context of a larger overall population and a reduction in service intensity. The size of the family guidance center workforce has remained generally stable, caseloads have increased near the high end of the targeted range, job vacancy rates have increased somewhat, and some vacant positions were eliminated (for additional discussion see the Integrated Performance Monitoring reports for FY 2005). These factors may coincide to create an environment that encourages earlier discharge of youth who have improved with services, but who may not have improved quite as much as in the recent past.

Summary and Conclusions

During the past two years, workgroups were assembled to review the results of the annual evaluations and to make recommendations for system improvements. Implementation has begun on some of those recommendations, but others remain as concepts. The FY 2005 evaluation provides an update on the status of the findings that contributed to these prior recommendations. The consistency of many findings does not call for dramatic change in the nature of prior recommendations, but for continued implementation of initiatives and consideration of recommendations not yet addressed. The exception to this involves the finding that on average, youth discharged from the system have greater functional impairment and service needs than in prior years. The revision of performance standards and practice standards, issuance of the Request for Proposals (RFP), provider preparation of proposals, and evaluation of those proposals for the next generation CAMHD services array, and the launch of the planning process for CAMHD's next strategic plan during fiscal year 2006 provide important opportunities to integrate the recent recommendations into CAMHD services. Therefore, rather than preparing another set of annual recommendations, it is recommended that the existing reports be reviewed and critically considered during revision of these key infrastructure activities.

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CAMHD Reports are available on-line at http://www.hawaii.gov/health/mental-health/camhd/resources/index.html

Appendix A: Methodology

Data Sources

Data for this report were gathered from a variety of sources. The primary source of information is the Child and Adolescent Mental Health Management Information System (CAMHMIS), which supports registration of child and youth with CAMHD, authorization of services, electronic billing for services, and child status monitoring functions. System information was collected from independent databases maintained by numerous offices and committees within CAMHD. The CAMHD Administrative Services Office maintains the databases for QUEST enrollment and manual billing information for intensive in-home services. The Clinical Services Office maintains a database of youth placed in out-of-home settings based on weekly provider census reports. The Performance Management Office maintains a database of sentinel events based on incident reports submitted by providers. The CAMHD research and evaluation section (RES) was responsible for merging and validating information from this multitude of databases, and is responsible for any errors in data or analysis reported here.

Child and Adolescent Mental Health Information System (CAMHMIS) Fields. Information was gathered and entered into CAMHMIS through the standard operating procedures of the regional Family Guidance Centers. Generally, care coordinators are responsible for gathering data from families and professionals and for organizing completion of child status measures on a quarterly basis. Detailed information about the structure of the CAMHMIS database is beyond the scope of the present report.

Population Variables

Admissions were defined to include both new registrations and repeated registrations without a discharge within the preceding one-month period. New registrations were counted when a new record is created for a youth previously unknown to CAMHD with a registration start date within the reporting period. Repeated registrations were identified whenever a previously known youth had at least one registration record during the reporting period indicating a change in registration status from a discharged status to a registered status.

Age in Years was defined as the difference between a youth's date of birth and the final day of each fiscal year (e.g., June 30, 2005).

Agency Involvement data (i.e., Department of Human Services (DHS), court, and incarcerated/detained) were entered into CAMHMIS in the form of a start date and end date of involvement with each agency. An exception to this procedure is that Medicaid/Med-QUEST involvement is recorded through a back office transaction, not data entry by the FGCs. A youth was defined as involved with a specific agency if they had an active record for one or more days during the reporting period.

Diagnostic Status was defined based on Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994) codes entered into CAMHMIS. Children and youth may receive multiple diagnoses on the first two axes of the DSM system. Diagnoses on either axis whether primary, secondary, or tertiary were included in analysis of comorbid diagnoses. Diagnostic information from the most recent assessment recorded in CAMHMIS provided the data for these indicators. The primary diagnosis indicators count only primary diagnoses, whereas the *any diagnosis* indicators counts a diagnosis within each category regardless of whether it is primary, secondary, or tertiary. The multiple diagnosis indicators describe the number and proportion of youth with any secondary or tertiary diagnosis recorded. The arithmetic mean of diagnoses is also reported for all registered youth.

Discharges were recorded when a youth had at least one registration record during the reporting period indicating a change in registration status from registered status to discharged status.

Ethnicity information was collected using the categories of Alaska Native, American Indian, Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, Other Asian, Black or African-American, Guamanian or Chamorro, Micronesian, Samoan, Other Pacific Islander, White or Caucasian,

Portuguese, Cuban, Mexican, Puerto Rican, or Other Hispanic or Latino or of Spanish Origin, Other Race or Ethnicity not Listed, or Unknown. The race and national origin categories were collected through two different questions. Consumers could select multiple responses so the number of endorsements reported is duplicated across categories. A multiethnic category is also calculated indicating whether more than one category was endorsed regardless of whether the multiple categories occurred within or across racial and national origin groups.

Family Guidance Center (FGC) was defined as the most recent center to which youth were registered as of the final day of the reporting period.

Gender was based on client self-presentation and was coded as either female or male.

Mental Health Eligibility described the source of the youth's eligibility for CAMHD services. A youth was included in each category if there was a record of eligibility for one or more days during the reporting period. FGC staff enters this information into CAMHMIS.

Educational Support (IDEA, 504, Pending) identifies whether a youth was eligible for mental health services because mental health services were identified as necessary in an IEP or MP document.

SEBD indicates whether a Medicaid eligible youth was qualified to receive mental health services through CAMHD because that youth was determined to be eligible for CAMHD's Support for Emotional and Behavioral Development (SEBD) program due to a mental health disorder causing significant functional impairment. Both full and provision SEBD members were included. During FY 2005, this procedure replaced a system of entering a service authorization code (34101) that indicated the period of SEBD enrollment. To account for both systems, a youth was defined as SEBD eligible if either of these procedures indicated that the youth was SEBD for one or more days during the reporting period.

Fee-For-Service describes whether a Medicaid eligible youth was qualified to receive mental health services through CAMHD on a fee-for-service basis. These consumers had the opportunity to "opt in" to the CAMHD QUEST plan.

Juvenile Justice distinguishes those youth who were eligible to receive mental health services through CAMHD due to their involvement with the juvenile justice system, but not any other mechanism.

Under Determination identifies youth who were receiving service from CAMHD during the period when their mental health eligibility was actively being determined.

National Origin was based on consumer reports in the categories of (a) Hispanic or Latino or of Spanish Origin, (b) Not Hispanic or Latino or of Spanish Origin, or (c) Unknown whether Hispanic or Latino or of Spanish Origin. Within the Hispanic or Latino or of Spanish Origin category, consumers could select multiple choices from the options of Cuban, Mexican, Puerto Rican, or Other .

Race was based on consumer reports as either (a) American Indian or Alaska Native; (b) Asian, (c) Black or African-American, (d) Native Hawaiian or Other Pacific Islander, (e) White, (f) Other Race or Ethnicity not Listed, (g) Multiracial, or (h) Unknown. Consumers could select multiple choices from the options of Alaska Native, American Indian, Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, Other Asian, Black or African-American, Guamanian or Chamorro, Micronesian, Samoan, Other Pacific Islander, White or Caucasian, or Portuguese. The multiracial category was identified when respondents selected multiple choices that crossed racial categories (e.g., American Indian and Chinese) but not when multiple choices were selected within the same racial category (e.g., Chinese and Filipino was classified as single race Asian). If valid consumer reports are not available then care coordinators may identify youth race, ethnicity, and national origin based on their observations. This category is reported as "Based on Observation."

Service Variables

Intensive Mental Health Services (also referred to as High-End services) were defined to include psychosexual assessments, intensive home and community based services (including multisystemic therapy), day treatment, partial hospitalization, intensive day stabilization, therapeutic foster homes, therapeutic group homes, respite home, community-based residential, community high-risk residential, hospital-based residential, acute inpatient, out-of-state, and respite services. Intensive services also included flex funded services for any of these levels of care.

Monthly Treatment and Progress Summary (MTPS; CAMHD 2003). The MTPS is a locally constructed clinician report form designed to measure the service format, service setting, treatment targets, clinical progress, intervention practice elements, and provider outcomes on a monthly basis. In addition to providing structured response options from which clinicians could select, the MTPS included other fields for each domain that allowed clinicians to write open-ended responses that were not addressed by the predefined fields. For the format and setting questions, clinicians are asked to indicate all formats (individual, group, parent, family, teacher, or other) and settings (home, school, community, out of home, clinic/office, or other) in which the youth received services during the reporting month. Clinicians are then asked to indicate up to 10 target competencies or concerns, which were the focus of treatment during the reporting month. The targets are selected from a list of 48 predefined targets and two additional open-response fields are provided. Clinicians then provide a progress rating for each target that describes the degree of progress achieved between the child's baseline level of functioning and the goal specified for the target. Progress ratings are provided on a 7-point scale with the anchors of *Deterioration < 0%, No Significant changes 0 – 10%, Minimal Improvement 10 – 30%, Some Improvement 31 – 50%, Moderate Improvement 51 – 70%, Significant Improvement 71 – 90%,* and *Complete Improvement 91 – 100%.* Next, clinicians are asked to indicate all of the specific intervention strategies (a.k.a., practice elements) that were used with the child and family during the month. The MTPS records 55 predefined intervention practice elements (e.g., activity scheduling, assertiveness training, biofeedback, etc.) and allows for the write-in of up to three additional intervention practice elements per month. Finally, the MTPS provides a number of optional fields that allow providers to report other measure of outcomes that they may collect including the ASEBA, CAFAS, CALOCUS, whether the youth was arrested during the month, and the percent of school days attended. These forms and the structured codebook defining the interventions are available on the CAMHD website. Statewide training was provided on the completion of the form and definitions of various practice elements. Additional videotaped training is available upon request to CAMHD's Clinical Services Office.

Out-of-home Placement was an indicator variable identifying if a youth received any out-of-home service during the period. Out-of-home services included out-of-state, acute inpatient, hospital residential, community high-risk residential, community residential, therapeutic group home, and therapeutic foster home services. When specifically noted, some analysis may include services provided while youth were detained or incarcerated as out-of-home services.

Out-of-home Service Intensity was calculated as the proportion of hours recorded for out-of-home services during the period divided by the total service hours during the period (for details see service intensity definition below).

Receipt of Services was calculated based on records that were accepted as payable during billing adjudication for the hospital residential, community residential, therapeutic group home, therapeutic foster home, respite home, intensive day stabilization, intensive in-home, and less intensive levels of care. Service information for the out-of-state, community high-risk, multisystemic therapy, flex, and respite is based on the CAMHMIS service authorization database augmented by information based on manual billings collected by the Fiscal Office and weekly provider census data collected by the Clinical Services Office. A youth is identified as receiving a service if there was a record of payment for the service on at least one day during the quarter. Thus, the service receipt counts are unduplicated within a level of care, but are duplicated across levels of care. For example a youth who received one month

of hospital residential and two months of intensive in-home services would be recorded as receiving both of these levels during the period.

Service Changes: Care Coordinator Changes were defined as any change in the assignment of a care coordinator to a youth as recorded in CAMHMIS child registration. The total number of changes across all youth is reported, as are the average number of changes per month, and the average number of changes per registered youth during the reporting period (i.e., FY 2004)

Service Changes: Provider Agency Changes was calculated as the number of provider agency changes per period. For example, a youth who moved from a community residential provider to a multisystemic therapy provider during a period would record one provider change, whereas a youth moving from community residential to hospital residential and back to community residential services during the period would record two changes. A youth changing providers within a level of care would record a provider change whereas a youth changing levels of care within a provider agency may not. This variable was selected to provide a gross indicator of the frequency with which youth experience major service transition, but it does not capture the frequency of changes to individual therapists within a provider agency.

Service Intensity was defined as the number of service hours per reporting period. Service units are recorded in CAMHMIS as 15-minute units for home and community services and daily units for out-of-home services. To create a relatively comparable metric across levels of care, daily out-of-home services were converted to hours at a rate of 6.5 hours per day. Because daily utilization of multisystemic therapy was not recorded for fiscal years 2001 to 2002, hours of service were allocated based on the practice standard formula of 80 hours during the first month of service, 40 hours during the second month, and 20 hours for subsequent months.

Fiscal Variables

Cost per Level of Care (LOC) was calculated as the total cost (US$) of services for a given level of care divided by the unduplicated count of youth receiving services at that level of care. Therefore, these expenditures are unduplicated across levels of care and when summed across all levels of care will equal the total expenditures during the period for the study sample.

Cost per Youth per Level of Care (LOC) represented the average cost (US$) for services received by youth at the specified level of care during the period. This variable describes the average cost of providing the specific service to youth. If a youth received any other service during the period, this value will be less than the total cost of providing services to that youth.

Total Cost of Services was the sum of all service expenditures (US$) recorded during the period. When presented by level of care, the total cost of services was allocated to level of care based on youth counts that were duplicated across levels of care, but unduplicated within a level of care. Therefore, these expenditures are duplicated across levels of care and will sum to a value greater than the total real expenditures during the period.

Total Cost per Youth represented the average cost (US$) for all services received by youth during the period. For example, the total out-of-state cost per youth includes total expenditures for youth who received any out-of-state service. If a youth received two weeks of out-of-state services and two months of multisystemic therapy for a total quarterly expenditure of $20,000, this amount would be included in calculating the averages for both the out-of-state services and multisystemic therapy levels of care. This variable describes the total cost during the period of providing services to a youth receiving one or more days of service at a specified level of care.

Outcome Variables

ASEBA Child Behavior Checklist (CBCL; Achenbach, 1991a; Achenbach and Rescorla, 2001). The CBCL is a 113-item child behavior problem checklist completed by parents, parent-surrogates, or others who

know the children in family-like settings. Respondents are asked to rate items on a three point scale from not true to very true or very often that describe a youth "now or within the past 6 months." It provides total, broadband, syndrome, and competence scales. The broadband problem scales measure an internalizing factor and an externalizing factor. The syndrome scales measure withdrawn behavior, somatic complaints, anxious/depressed behavior, delinquent behavior, aggressive behavior, social problems, thought problems, and attention problems. The competence scales assess school, activity, and social competence. Raw scores and T-scores (Mean = 50, SD = 10) based on gender and age groups from the standardization sample are available. Achenbach (1991a) reported acceptable internal consistency (α = .90 internalizing, α = .93 externalizing) and test-retest reliability (one-week r = .89, .93; one-year r = .79, .87; two-year r = .70, .86) for the CBCL. Achenbach (1991a) also reviewed numerous studies supporting the validity of the CBCL relative to other parent-report behavior checklists, clinic-referral status, and categorical psychiatric diagnosis. T-scores were used in all analyses. Achenbach and Rescorla (2001) reported internal consistency (α = .90 - .92 broadband, α = .82 - .92 syndrome, α = .82 - .93 competence), parent agreement (r = .72 - .85 broadband, r = .65 - .85 syndrome, r = .57 - .76 competence), 8-day test-retest reliability (r = .91 - .92 broadband, r = .67 - .88 syndrome, r = .83 - .91 competence), 12-month stability (r = .80 - .82 broadband, r = .64 - .82 syndrome, r = .62 - .76 competence), and 24-month stability (r = .70 - .82 broadband, r = .56 - .81 syndrome, r = .43 - .73 competence) for the CBCL. The ASEBA information is collected on optical scan forms that are sent via state courier to the CAMHD Management Information System (MIS) office for processing and uploading to CAMHMIS.

ASEBA Teacher Report Form (TRF; Achenbach, 1991b; Achenbach and Rescorla, 2001). The TRF is a 113-item behavior problem checklist that is completed by teachers or school personnel who know the child in school-like settings. Respondents are asked to rate items on a three point scale from not true to very true or very often that describe a pupil "now or within the past 2 months." It provides total, broadband, syndrome, and competence scales. The broadband problem scales measure an internalizing factor and an externalizing factor. The syndrome scales measure withdrawn behavior, somatic complaints, anxious/depressed behavior, delinquent behavior, aggressive behavior, social problems, thought problems, and attention problems. The TRF competence (a.k.a. adaptive functioning) assessment differs from the other ASEBA forms and yields the following scales: academic performance, working hard, behaving appropriately, learning, and happy. Raw scores and T-scores (Mean = 50, SD = 10) based on gender and age groups from the standardization sample are available. Achenbach and Rescorla (2001) reported internal consistency (α = .90 - .95 broadband, α = .72 - .95 syndrome, α = .90 total adaptive functioning), teacher agreement (r = .58 - .69 broadband, r = .28 - .69 syndrome, r = .37 - .58 competence), 16-day test-retest reliability (r = .86 - .89 broadband, r = .60 - .96 syndrome, r = .78 - .93 competence), 4-month stability (r = .48 - .69 broadband, r = .38 - .84 syndrome) for the TRF. The ASEBA information is collected on optical scan forms that are sent via state courier to the CAMHD Management Information System (MIS) office for processing and uploading to CAMHMIS.

ASEBA Youth Self-Report (YSR; Achenbach, 1991c; Achenbach and Rescorla, 2001). The YSR is a 112-item behavior problem checklist that is completed by youth between 11 and 18 years of age. Respondents are asked to rate items on a three point scale from not true to very true or very often that describe themselves "now or within the past 6 months." It provides total, broadband, syndrome, and competence scales. The broadband problem scales measure an internalizing factor and an externalizing factor. The narrowband problem scales measure the following dimensions: withdrawn behavior, somatic complaints, anxious/depressed behavior, delinquent behavior, aggressive behavior, social problems, thought problems, and attention problems. Raw scores and T-scores (Mean = 50, SD = 10) based on gender and age groups from the standardization sample are available. The YSR competence scales measure activity and social competence, but not school competence. Achenbach and Rescorla (2001) reported internal consistency (α = .90 broadband, α = .71 - .90 syndrome, α = .55 - .75 competence), 8-day test-retest reliability (r = .80 - .89 broadband, r = .67 - .88 syndrome, r = .83 - .91 competence), and 7-month stability (r = .53 - .59 broadband, r = .36 - .63 syndrome, r = .43 - .59 competence) for the YSR. The ASEBA information is collected on optical scan forms that are sent

via state courier to the CAMHD Management Information System (MIS) office for processing and uploading to CAMHMIS.

Child and Adolescent Functional Assessment Scale (CAFAS; Hodges, 1998). The CAFAS is a 200-item clinician report scale that measures youth's level of functional impairment. Based on their knowledge and experience with the child, raters review behavioral descriptions ordered by level of impairment within eight domains of functioning. The subscales of School Role Performance, Home Role Performance, Community Role Performance, Behavior Toward Others, Mood/Emotions, Mood/Self-Harmful Behavior, Substance Use, and Thinking are calculated by scoring the highest level of impairment (i.e., severe = 30, moderate = 20, mild = 10, no/minimal = 0) endorsed within the respective domain of items. An eight-scale total score is calculated by summing across the eight subscales, whereas a five-scale total is calculate by summing the raw scores from behavior, substance use, and thinking scales with the maximum score from the school, home, and community role performance scales and with the maximum score from the emotions and self-harm. The CAFAS has been found to have acceptable internal consistency across items, inter-rater reliability across sites, and stability across time (Hodges, 1995; Hodges and Wong, 1996). Studies of concurrent validity have found that CAFAS scores are related to severity of psychiatric diagnosis, intensity of care provided, restrictiveness of living settings, juvenile justice involvement, social relationship difficulties, school-related problems, and risk factors. Studies of predictive validity have found that CAFAS scores from intake assessments predict service utilization and cost for services. Care coordinators serve as the primary raters for the CAFAS and results are entered directly into a networked, computer-scoring program by care coordinators or statistics clerks.

Child and Adolescent Level of Care Utilization System (American Academy of Child and Adolescent Psychiatry, 1999). The CALOCUS is a clinician rating form. Clinicians make dimensional ratings on a five-point scale in the domains of risk of harm, functional status, comorbidity, environmental stress, environmental support, resiliency and treatment history, child treatment acceptance and engagement, and parent treatment acceptance and engagement. These ratings may be summed to yield a total score, but are also combined through a detailed algorithm into a level of care judgment into one of seven categories: basic services (Level 0), recovery maintenance and health management (Level 1), outpatient services (Level 2), intensive outpatient services (Level 3), intensive integrated service without 24-hour medical monitoring (Level 4), non-secure, 24-hour, medically monitored services (Level 5), and secure, 24-hour, medically managed services. Preliminary reliability (Ted Fallon, 2002, personal communication) indicated that intrajudge agreement based on clinical vignettes ranged from ICC (2,2) = .57 - .95 across scales with all scale above .70 except for environmental stress and child treatment acceptance and engagement. Preliminary validity analysis found that the CALOCUS total score correlated -.33 with the Child Global Assessment of Scale (CGAS) and .62 with the CAFAS eight-scale total score. Care coordinators serve as the primary raters for the CALOCUS and results are entered directly into a networked computer scoring program by care coordinators or statistics clerks.

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